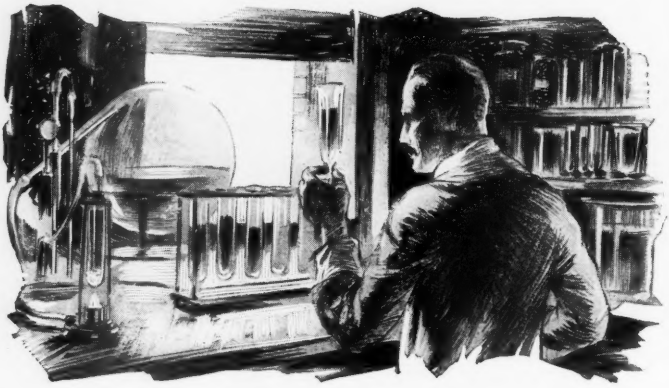
MAY 0 1924

THE DENTAL DIGEST

MAY - 1924
VOL. XXX - NO. 5
EDITED BY
GEORGE WOOD CLAPP, D.D.S.
PUBLISHED BY
THE DENTISTS' SUPPLY CO.
CANDLER BLDG. TIMES SQUARE
220 WEST 42ND ST. NEW YORK

PROPERTY OF
DENTAL LIBRARY
UNIVERSITY OF MICHIGAN
MUTILATE OR
REMOVE



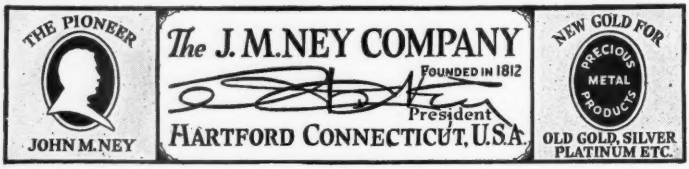
In 1924

THIS, the one hundred and twelfth year since the founding of The J. M. Ney Company, marks no change in the fundamental idea on which the business was based.

At the beginning, the most skilled artisans of the time devoted their talents to the work. At the present, experts in metallurgy and in chemistry establish the formulae and devise the processes of manufacture for the many products of the Ney line.

"Best since 1812"

represents no empty boast



THE
DENTAL DIGEST

Vol. XXX MAY, 1924 No. 5

Tips in Anesthesia and Surgical Exodontia*

By Herman Ausubel, D.D.S., Brooklyn, N. Y.

Chief, Oral Surgery Department, Bikur Cholim Hospital, Brooklyn; Instructor in Anesthesia and Oral Surgery, Postgraduate Courses of Allied Dental Council.

This paper has been written with a view to clarifying existing uncertainties and hazy notions in the profession at large, on the subject of anesthesia and surgical exodontia, rather than with a view to elucidating fundamentals on these subjects, which should be studied from other articles and textbooks particularly devoted to these subjects.

The writer's contact with hundreds of general practitioners, both as a teacher of these subjects and consultant in difficult cases, revealed to him the existence of a decided lack of comprehension of many fine points that need to be cleared from the haze with which they are surrounded.

Perfect Anesthesia Essential. In these days of intense competition, nervousness and hysteria, absolute anesthesia is a *sine qua non* to efficient dental work. Perfect anesthesia is a prerequisite to success in dentistry which enables one to work more rapidly without interference on the part of the patient, and also saves the dentist's nerves and those of his patients. Many a person neglects his teeth because of the fear of pain incident to the grinding, drilling, excavating and tearing of live dentine and "touch-me-not" nerves, although he would be perfectly willing to pay any price for saving them, if done painlessly. By instituting a painless way of doing your work, instead of the barbarous methods used in the past, you immediately establish your name in the community as a painless, modern dentist, which is synonymous with success. Any one neglecting to master this very important branch of dentistry is a sure failure, both professionally and financially.

Submucous and Subperiosteal Infiltration Anesthesia for Labial Surfaces of Upper Teeth. Use infiltration anesthesia submucously or subperiosteally in the periapical areas of all upper teeth, except in the first and second molars that have a heavy cortical bone around them, reinforced sometimes by the malar process of the superior maxillae, where absorption is poor, in which the zygomatic and posterior palatine injections are indicated. These methods may be used with great success for the grinding of teeth in bridgework, for excavating cavities,

* Read before the Westchester County (New York) Dental Society, May 15, 1923.

for pulpotomy, pulpectomy, exodontia and minor oral surgical operations, as the bone in the incisive and canine fossae, as well as in the region of the upper third molars, is very porous and absorption of the solution will readily take place.

Palatal Anesthesia. For the palatal surface, the anterior palatine injection should be used for the six anterior teeth and the posterior palatine injections for the bicuspids and molars on either side. This should always be preferable to lingual injections around each tooth, as by this method we get a deeper and more prolonged anesthesia than by making numerous punctures around each tooth, which increases the possibility of infection and after-pain.

Submucous and Subperiosteal Anesthesia for Labial Surfaces of Lower Teeth. In the lower jaw, use the submucous and subperiosteal anesthesia in the periapical areas of all teeth, except the molars, where the alveolar process is very heavy, reinforced as it is by the external and internal oblique lines, in which the mandibular injection is indicated.

Lingual Anesthesia. You may anesthetize the lingual surface by injecting, a little posterior and lingual to the third molar, in a line corresponding with the level of its periapical area, where the lingual nerve will be intercepted as it descends from the ramus downwards, to supply the lingual mucous membrane and the tongue. With this injection you will get anesthesia up to the median line, eliminating the numerous clumsy punctures made for each individual tooth. You may also get lingual anesthesia by injecting for the lingual nerve about one-half c.c. of solution, using the method described later for mandibular injections but omitting the injection for the inferior dental nerve.

Horizontal Injections. Use the horizontal injection for anesthetizing many teeth at one time. For example, to anesthetize the upper anterior ten teeth, make a puncture in the periapical area of the left central, penetrating the frenum, and pass the needle horizontally to the periapical areas of the right central, lateral and canine, depositing some solution as you progress with the needle and also while withdrawing it. Then make another puncture in the periapical area of the first bicuspid, depositing the solution while advancing and withdrawing the needle. Syringe may then be refilled and the needle reinserted in the same puncture made above the left central, repeating the process on the left side. The same technic may be carried out in the lower anterior ten teeth. Massaging the solution into the tissues after injecting will materially help its absorption into the deeper structures.

Upper Third Molars. It is sometimes very difficult to give an infiltration injection into the upper third molars, as when the buccinators are very taut, leaving very little vestibular space to inspect the area for the insertion of the needle. In these cases the horizontal injec-

tion may be used successfully by making the puncture in the periapical area of the first molar and advancing the needle to the tuberosity, depositing solution in same.

Anterior and Posterior Palatine Injections. The puncture for the anterior palatine injection should be made about one cm. posterior to the gingivae of the centrals in the median line, holding the syringe parallel with the direction of the central teeth. The posterior palatine puncture is made one cm. medially to the last molar present, whether it be the first molar in young children, the second molar in children above twelve, or the third molar in adults.

The posterior palatine injection is painless, as the solution is deposited into yielding soft tissue. Do not use more than 5 to 8 drops for this injection, as otherwise the muscles of the soft palate will be anesthetized and the patient will complain of gagging. The anterior palatine injection is rather painful, as the solution is deposited into unyielding soft tissue. Inject very slowly a drop or two of the solution, waiting about half a minute, and then deposit the rest of the solution, which will diminish the pain of the injection. If you inject laterally to the central papilla, which is very sensitive, less pain will be produced.

It is not necessary to pass the needle through the canal into the nose. Just get into the foramen, below the soft tissues, and deposit the solution.

It is well to remember in this connection that injecting into soft tissues produces very little pain, while injecting into unyielding tissues produces more pain. Very little pain is thus experienced in the mandibular zygomatic, infra-orbital and submucous injections, but a good deal of pain is produced by the anterior palatine and subperiosteal injections, which are very painful and should be discarded while working on nervous patients. In injecting for one tooth, it is therefore advisable to avoid the anterior palatine injection and use the infiltration method instead. The palatine injections are also indicated in people with gagging tendencies, before taking impressions or before taking radiograms.

A burning sensation is sometimes felt underneath full dentures, due to pressure on the naso-palatine nerve and anterior palatine nerves as they descend from the anterior palatine and posterior palatine foramina respectively, which may be corrected by the relieving of the denture in those areas which are pressing against these nerves.

Mental Injections. The mental injection has been discarded by the writer as useless, for the following reasons: (a) You are liable to produce edema and after-pain by injecting into the muscles attached in the region of the mental foramen. (b) It anesthetizes about three teeth on the labial surface only, necessitating additional lingual injec-

tions. (c) The injection is rather clumsy as the aperture of the mental foramen points to the rear (as it transmits a recurrent nerve). By giving a mandibular injection you anesthetize a larger area and also eliminate the above-mentioned objections.

Infra-orbital Injections. The infra-orbital injection can be practically discarded by the general practitioner for routine dental work, unless deep anesthesia is desirable, as in operations on apicoectomy, impactions, etc. It may also be used in cases of infection, although the ethyl chloride spray or, better still, N_2O and O is preferable for these cases.

In giving an infra-orbital injection for an upper central, a little infiltration anesthesia should be given for the opposite side, in order to anesthetize the arborization of nerves from that side. The same applies in giving a mandibular injection and operating on the lower central teeth, as well as in giving zygomatic injections and operating on upper first molars, which may get an additional nerve supply from the middle superior dental, which is often not anesthetized by the zygomatic injection.

A puncture for the infra-orbital injection should be made in a line corresponding with the palpating finger from the outside. The convexity above the canine fossa is sometimes very high and unless you are guided by the palpating finger from the outside, you may be obstructed from passing the needle into the foramen.

It is the writer's practice to insert the needle between the two bicuspids and advance it perpendicularly up to the foramen. In Germany they advocate making the puncture above the incisors and passing the needle obliquely into the infra-orbital foramen.

It is always advisable not to force the needle into the foramen, as in doing so you are liable to puncture a blood-vessel, with a resultant hematoma and ecchymosis. This is due to the fact that the canal is very small and the blood vessels cannot escape from the needle, though they are elastic. This accounts for the fact why hematomas are so common in the infra-orbital injection and so rare in the mandibular injection, as in the latter the blood-vessels may escape in a space filled with areolar tissue. Occasionally a hematoma is produced in the zygomatic injection, due to the numerous, tiny blood-vessels ramifying in that area. It is advisable to move the needle to and fro, while injecting, so as to avoid injecting the solution into a blood-vessel which may produce alarming symptoms.

A 42 mm. needle of 23- to 25-gauge is used for the infra-orbital, zygomatic and horizontal injections. For the mandibular injection, a 42 mm. needle of 19- to 21-gauge is used in order to avoid breakage of same, with all the unpleasant consequences resulting therefrom.

In using a heavy-gauge needle, there might be some after-pain pres-

ent in that area, due to the trauma produced, which disappears very readily. This little discomfort, however, is preferable to the possibility of breaking a needle.

Zygomatic Injection. In giving a zygomatic injection, the puncture should be made between the first and the second molars in order to avoid the malar process which separates them, and the needle extended obliquely upward for some distance, almost hugging the bone and then directing the syringe externally toward the angle of the mouth, when needle is advanced inward and backward beyond the curvature of the tuberosity, inserting 2 to 3 cm. of the needle into the tissues. It is the writer's practice, after depositing about two-thirds of the solution in that way, to withdraw the needle partially and reinserting it, through the same puncture, in a relatively horizontal direction, to deposit the rest of the solution.

The object of this technic is to deposit the solution in the several posterior alveolar foramina, which are situated at some distance from each other, through which the posterior superior dental nerves pass to supply the molars. This will probably account for so many failures being encountered by those who do not follow out this technic in giving the zygomatic injection.

Some doctors have complained to me that when giving a mandibular injection they found the upper jaw was anesthetized instead of the lower jaw. The explanation of this may be that the needle was passed beyond the posterior border of the ramus of the mandible into the parotid gland through which the facial nerve passes, which supplies the musculature of the face. If these gentlemen would only insert from 2 to 2½ cm. of needle into the tissues, when giving a mandibular injection, this (barring exceptional cases in which the rami are very narrow) would never happen.

Linguo-mandibular Injection. For the linguo-mandibular injection, arrange the head so that when the patient opens the mouth the occlusal planes of the teeth are parallel with the floor of the room. Put your index finger on the occlusal planes of the molars, radial side downward, and just feel the bone to see whether you have a definite internal oblique line present or not. Make the puncture about one cm. above the occlusal planes of the teeth (about one-half the width of the index finger), directing the syringe from the opposite side around the bicuspids and parallel with the occlusal planes of the teeth until you strike bone. The syringe is then turned toward the same side of the injection, withdrawn from the periosteum and inserted about one cm. distant, depositing about one-half c.c. of solution to anesthetize the lingual nerve. The syringe is then directed to the opposite side, beyond the median line, the extent depending upon the curvature of the rami, and an additional 1 to 1½ cm. of needle is inserted into

the mandibular sulcus, where the rest of the solution is deposited, in order to anesthetize the inferior dental nerve.

It is sometimes advisable to give two mandibular injections on the same side before operating on extensive surgical cases, in order to get a more prolonged and profound anesthesia. Should you want to anesthetize the teeth for cavity preparation, pulpectomy or grinding teeth for bridgework, you may omit the lingual injection. In giving a mandibular injection on both sides, the patient should be warned not to eat until the anesthesia subsides; otherwise the tongue might be badly mutilated without the patient knowing it.

I sometimes find it advisable to infiltrate the area in addition to the conduction injection in order to eliminate the troublesome bleeding, as in cases of necrosis where there is profuse bleeding, also in fine delicate operations, as apicoectomy, surgical pyorrhea operations, etc.

Occasionally a ramus is too narrow or too wide, in which case its width should be ascertained by inserting one finger on the posterior border from the outside and another finger on the anterior border inside the mouth. Then gauge the length of the insertion accordingly. It is thus sometimes necessary to insert 3 cm. of needle in order to get to the mandibular sulcus, and at other times 2 cm. needle insertions will pass into the parotid gland, which results in the absence of anesthesia.

When the molars are absent and the landmark for making the puncture is gone, you may make the proper puncture by palpating the external oblique line and making it in a line corresponding with the deepest concavity of same, which corresponds with a line above the lingula leading directly into the mandibular sulcus.

The syringe should be directed parallel with the occlusal planes of the teeth, not upward nor downward; otherwise you may fail in the anesthesia.

It is better to insert the needle a little higher than one cm. above the occlusal planes of the molars for a mandibular injection than to insert at a height less than one cm. from the molars, as in doing that you will be obstructed by the lingula from passing the needle into the mandibular sulcus and will eventually inject into the internal pterygoid muscle with resultant trismus and prolonged anesthesia, which may last for several weeks. Neither should the solution be deposited too soon in giving the zygomatic injection before inserting 2 to 3 cm. of needle into the tissues, as you may infiltrate some muscles with resultant edema and trismus. The same applies for the infra-orbital injections.

32 Court Street.

(To be continued)

Practical Articulation

By Francis Scott Weir, D.M.D., New York, N. Y.

There is no phase of full denture construction that is of such vital importance as articulation. A study of unsatisfactory dentures indicates that faulty articulation is responsible for a great majority of the failures. The reason for this is that articulation is a controlling factor of a careful and exact technic in other phases of the construction of a denture. Accurate impressions, correct central occlusion, pleasing harmony and careful vulcanizing may be of little value if the articulation has not been perfected. An unbalanced articulation causes excessive movement of the denture bases, thereby creating irritation of the supporting tissues, with a resulting change of arch form. This produces lack of stability in the base which, with a mechanical unbalance of the teeth, makes service almost impossible. Articulation for this reason is a *controlling* factor in *efficiency* after exact technic has been used in all other phases of the operation.

This article is intended to be practical; therefore, we shall consider articulation without reference to theories of instruments or advantages of the various technics, and study the subject only from the viewpoint of producing practical and efficient dentures.

In proceeding to articulate a case it must be understood that correct central occlusion or "bite" has been registered, as an error in the "bite" produces faulty articulation just as truly as an imperfection in placing the teeth in correct relationship. This point requires the most careful attention and is perhaps the weakest link in full denture technic. Therefore, develop a method of accurately registering central occlusion. In many cases this is difficult but is imperative if success is to be the result.

A study of the relation of natural teeth will teach one important lesson which is that incorrect relationship of cusps and inclined planes produces many pathologic, grotesque and inharmonious conditions. These are apparent in the work of the orthodontist and periodontist. In the natural dentition the teeth may be affected individually but in the artificial denture one tooth in an incorrect position exerts its influence on the upper and lower dentures.

The prosthodontist has one mechanical factor in common with the orthodontist, that lines of force tend to move the individual tooth and the denture because of incorrect cusp and plane relationship; but the prosthodontist has a second mechanical problem, that of leverage, causing displacement of the dentures. In considering articulation, or balanced occlusion, we shall study it (1) from cusp and plane relation, and (2) from the problem of leverage.

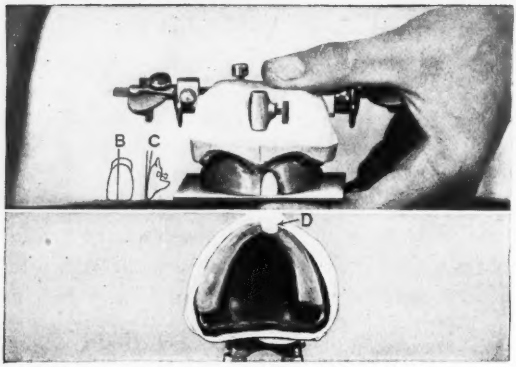


Fig. 1

Assuming the occlusion rims have approximated the desired contour and length, with a correct central occlusion registered and the case mounted on a good articulator, we start the arrangement with the superior central incisor. Cut away sufficient wax to allow the labial surface of the tooth to restore the labial surface of the wax, the incisal edge coming to the occlusal plane established (Fig. 1). Place the opposite central in like manner. This procedure is carried out for the superior six anteriors, their arrangement being varied in order to effect a pleasing harmony for the indivdual case (Figs. 2, 3, 4).

For simplicity we shall consider that the ridges are normal in their relation (in this first part) and study abnormal relations under the problem of leverage.

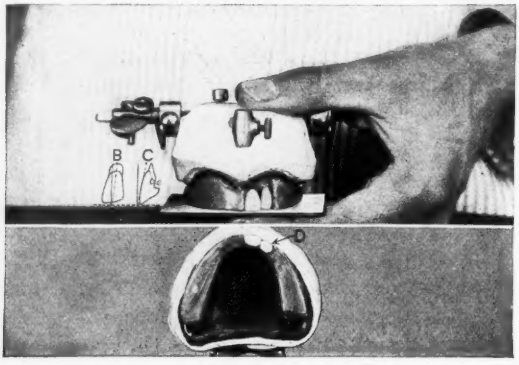


Fig. 2

NOTE—Figs. 1-9, and 11, 12, are taken from "Professional Denture Service," by Drs. Clapp and Tench, and letters on cuts refer to the text of that book.

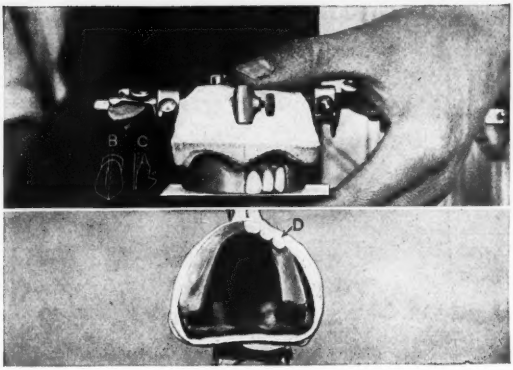


Fig. 3

To set the posterior superior teeth, soften the wax on the occlusion rim and place the first bicuspid directly over the ridge allowing the cusps to touch the occlusal plane. A space of one millimeter should be left between the cuspid and first bicuspid. The second bicuspid is placed the same as the first, leaving a space of one millimeter between the two. Place the first molar with the buccal cusp raised one millimeter while the lingual cusp touches the plane of occlusion, with the tooth in close contact to the second bicuspid. The second molar is placed in contact with the first, the lingual cusp on the plane of occlusion and the buccal cusp raised two millimeters.

The arch arrangement of these posteriors is made according to tooth form and face form. If the arch is tapering, the first bicuspid is set one millimeter lingual to the labial surface of the cuspid. The gingival

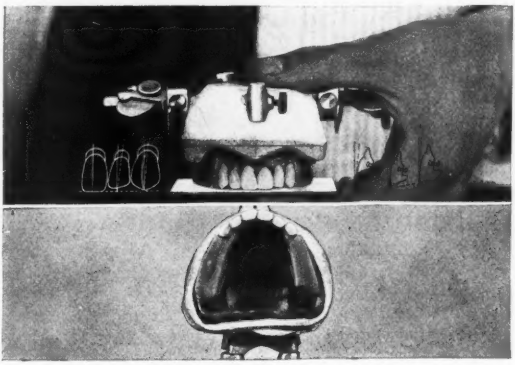


Fig. 4

margin of the cuspid is prominent and the incisal edge is depressed. The long axis of the cuspid inclines forward from the gingival margin. The second bicuspid is set one millimeter buccal to the first bicuspid, their long axes being nearly parallel to the cuspid. The first molar is placed in line with the second bicuspid, and the second molar is set one millimeter to the lingual (Fig. 5).

In the square arch the cuspid is in a vertical position. The incisal edge is in line with the bicuspids and first molars. The bicuspids and molars are arranged so that the sides of the arch are nearly parallel.

The ovoid arch is arranged in a way similar to the square with the exception of the bicuspids. The bicuspids are set one or two millimeters buccally, giving a general rounding to the arch outline.

Arranging the teeth for the arch forms carries them away from the ridge at times, but the distance is very short, does not affect the efficiency and increases the harmony, under normal conditions.

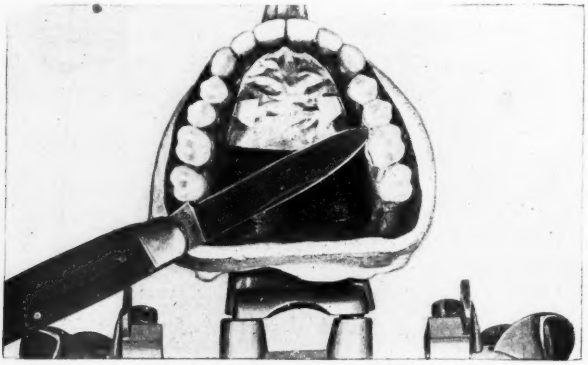


Fig. 5

After arranging the upper arch, proceed to the lower, starting with the first molar. In placing the first molar, sufficient space is allowed for the two bicuspids and second molar, permitting an accurate co-ordination of cusps.

The correct antero-posterior position for the first molar is secured by placing the tooth so that the mesio-lingual cusp of the upper is in the central fossa of the lower with the buccal groove of the upper co-inciding with a line through the center of the middle buccal cusp of the lower (Fig. 6). The cusp of the lower molar should be in the center of the upper molar to allow sufficient overjet. The two first molars are set to this position, and other positions need not be considered at this time.

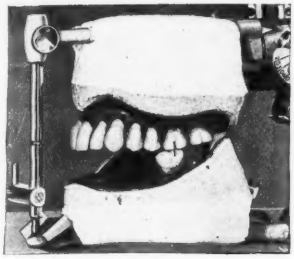


Fig. 6

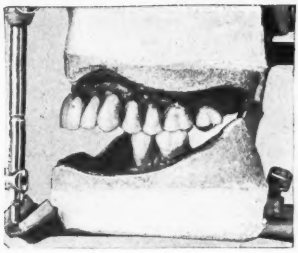


Fig. 7

Fig. 8

To set the lower bicuspids, place the cusp of the lower in the center of the upper so that the cusp of one bicuspid is directly in the interproximal space of the opposing bicuspids. Set the four bicuspids in the same manner (Fig. 7).

It is well to remember that all artificial teeth *must* be *ground* because of the action of porcelain when fusing. Some require more

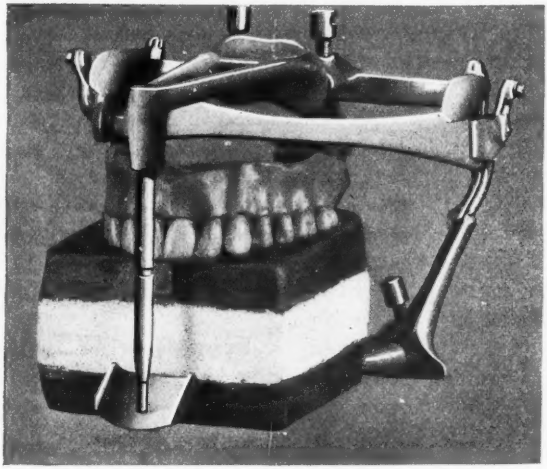


Fig. 9

than others and many require so much grinding that the tooth form becomes inefficient. In grinding, cut the marginal ridges but preserve the form of the occlusal surfaces. In arranging these posteriors, a minimum amount of grinding with a stone should be observed. There are only a few points, if correctly formed teeth are used, that need grinding. Usually the marginal ridges of the bicuspids and second molar are sufficient.

The correct position of the cuspid is considered after the bicuspids. Set the lower cuspid so that the gingival margin is prominent enough to hold the contour of the lip, and the incisal edges will come in full contact. A little grinding of the incisal edges facilitates this. An overjet of one millimeter at least should be observed for the upper cuspid beyond the lower.

The lower incisors are set *over* the *crest* of the *ridge*. The overjet and overbite will vary in each case. The uppers are set for expression and the lowers to the ridge. The lower incisors will sometimes be too wide and at other times too narrow. Spacing, dropping one central, rotating them or selecting the correct size may be employed to accommodate this. The gingival margin is set in to allow for the contour of the lower lip.

The second molar is the last tooth placed in position. The degree of curvature of this tooth will depend on the overbite and overjet. The curve should be such that when the teeth are placed in the incising position the anteriors and posteriors are in contact (Fig. 8). If the anteriors do not come in contact, decrease the curve in the second molar region until they do. If the posteriors are not in contact, increase the curve in this region.

The case is now articulated, ready to be vulcanized. After vulcanizing and finishing the case, try it in, and with a single layer of softened wax over the lower teeth cause the patient to close in the correct position, bringing the teeth in as firm contact as possible. Remount the case on the articulator in this relation (Fig. 9). Test the high points, and with a stone approximate a balance in all the positions (Figs. 10, 11, 12). Then mix a paste of a fine carborundum, using glycerine, vaseline, or tooth paste as a lubricant, and grind in thoroughly. This grinding-in is the recarving of the cusps and inclined planes to coordination in all the positions. No case should leave the office until this has been done and a check-bite in wax has been taken of the various positions to test for cusp interference.

The problem of leverage must be observed in many cases. The crest of the ridge is, in normal cases, a fulcrum point. If the ridge is soft the fulcrum point is at the junction of the hard and soft tissues. A small upper and large lower frequently are seen in a case. To place the teeth over the crest of the ridge, which is the fulcrum point, would

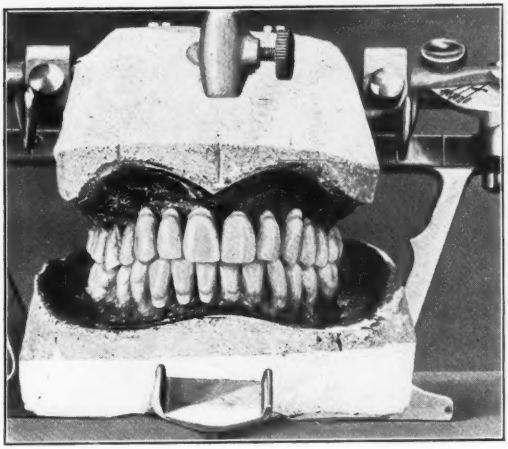


Fig. 10

be an impossibility. If the uppers are set out to the lowers, strong leverage is exerted on the upper denture and will soon destroy the adaptation of the denture bases. To overcome this, one of two procedures may be employed. The angle of inclination may be changed so that the lowers incline to the uppers and the uppers out to the lowers. If the tongue space permits and the discrepancy is not too great, this will usually solve the problem. However, many of these variations are so great that a crossing of the bite is believed advisable. This is done by setting the lowers of one side to the uppers of the opposite,

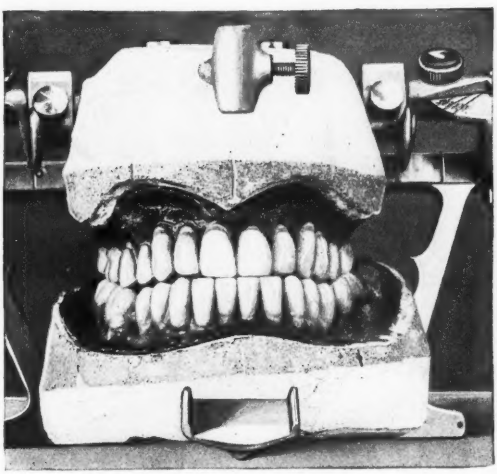


Fig. 11

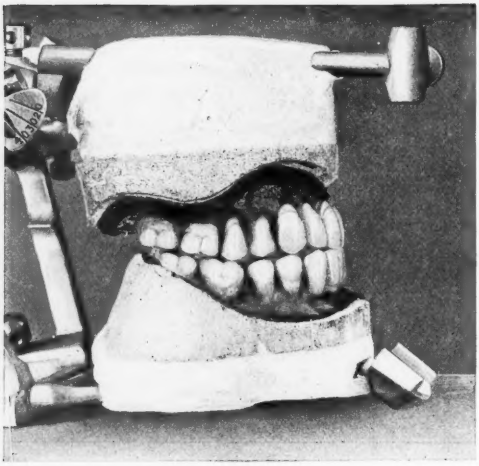


Fig. 12

dropping one bicuspid and the upper of one side to the lower of the opposite. It reverses the teeth but maintains the same cusp coordination and decreases the leverage because the lowers will now be buccal to the uppers. This is for posterior leverage problems.

The anteriors furnish the same problem. The teeth should be over the ridge from a mechanical consideration, but many cases will not permit this with the uppers. More pleasing effects are many times

Fig. 13

Fig. 14

obtained especially in straight profiles, by bringing the teeth out, but it creates leverage that tends to destroy the adaptation of the base. The appearance or efficiency or a compromise must be considered in these cases.

The most frequent irregular ridge relation is the retrusive lower. Anterior teeth need not be in contact in central occlusion, yet most dentists insist upon it. The overjet should be according to ridge relation. The fact that the teeth are over the ridge in these cases produces an overjet of three to six millimeters. Place them in that manner, as it produces better lip contour and freedom of speech and, at the same time, is mechanically correct.

The protruding lower calls for an edge-to-edge relation or the lowers biting outside the uppers. Set the teeth to these relations and more efficient as well as more pleasing dentures will be the result.

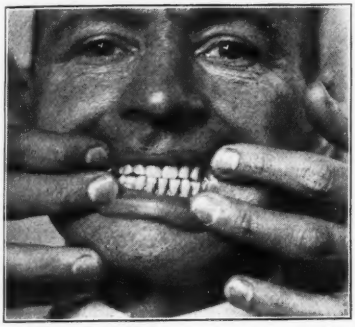


Fig. 15

Fig. 16

In studying a case, take study impressions and wax mush bite and mount them on an articulator so that you may study your problems.

A consideration of cusp coordination and leverage with good average impressions will produce efficient, comfortable dentures (Figs. 13, 14, 15, 16).

Set the teeth over the crest of the ridge, in central occlusion, and grind in the case thoroughly before the patient wears it from the office.

235 West 103rd Street.

Rational Treatment of Pulpless Teeth

By E. Alan Lieban, D.D.S., New York, N. Y.

Clinical Director and Lecturer on Root Canal Therapy, New York College of Dentistry; formerly Dental Surgeon of Lebanon Hospital, New York City, Metropolitan Hospital, New York City.

(*Fifth Article*)

Treatment of Recently Exposed Pulps

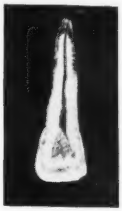
Pulp Capping. Pulps are capped to conserve the vitality which is essential to the development, color and translucency of the tooth. This treatment is advocated only in cases where the exposure has been made while preparing a cavity in sound dentine and precautions have been taken to exclude infection and other sources of irritation. It is contraindicated (1) where the exposure is made while removing infected softened dentine overlying the pulp, as it is only logical that the microorganisms have already invaded the pulp tissue; (2) in complete exposure due to caries, on account of the inflammatory symptoms present, which may be either acute or chronic; (3) in exposure due to abrasion, erosion or fracture. It is better to extirpate a diseased pulp than to let it die. Exception is taken in cases of children, where the pulp is exposed and inflammation is not extensive. An attempt is made to retain the vitality, at least until complete development of the root or roots has taken place. If possible, pulps of deciduous teeth should be preserved to insure proper absorption of the roots and their exfoliation at the correct time. Deep-seated cavities should always be sterilized and then lined with a non-conducting antiseptic substance which will seal the dentinal tubuli and protect the pulp from thermal shock.

Technic: After applying the rubber dam with the usual aseptic precautions, the cavity is swabbed with 95% alcohol and dried with sterile cotton pellets. A small crystal of thymol is placed over the exposure and heated with a ball burnisher. The crystal will dissolve and flow over the exposure, and in a few seconds it will again crystallize. Cover the thymol with a thick paste of zinc oxide and eugenol. After some of the excess moisture has been absorbed, cover with a creamy consistency of oxyphosphate cement. Do not insert a permanent restoration in a tooth with a capped pulp until at least a year's time has been given to ascertain the vitality by occasional thermal and electrical tests. When sensitiveness and odontalgia persist, possibly due to congestion after capping, it is advisable to resort to devitalization.

(The cuts on pages 335, 336, 337, and 338 are taken from "Operative Dentistry" by J. S. Marshall, M.D., published by J. B. Lippincott Company.)

A radiogram plus a knowledge of the approximate size and shape of the various roots and pulp canals is essential to aid in the removal

Superior left central incisor. Labio-lingual longitudinal section, showing pulp-canal.



Superior right central incisor. Mesio-distal longitudinal section, showing root-canal.

Superior left lateral incisor. Labio-lingual longitudinal section, showing root-canal.

Superior left lateral incisor. Mesio-distal longitudinal section, showing root-canal.

Inferior left central incisor. Labio-lingual longitudinal section, showing root-canal.

Inferior right central incisor. Mesio-distal longitudinal section, showing root-canal.

Inferior left lateral incisor. Labio-lingual longitudinal section, showing root-canal.

Inferior right lateral incisor. Mesio-distal longitudinal section, showing root-canal.

Superior right cuspid. Labio-lingual longitudinal section, showing root-canal.

Superior left cuspid. Mesio-distal longitudinal section, showing root-canal.

Inferior left cuspid. Labio-lingual longitudinal section, showing root-canal.

Inferior right cuspid. Mesio-distal longitudinal section, showing root-canal.

A B C

Peculiarities in inferior cuspids and bicuspids. *A*, bifurcated inferior cuspid; *B*, bifurcated canal, inferior first bicuspid; *C*, bifurcated canal (middle third), inferior second bicuspid.

Superior right first bicuspid. Bucco-lingual longitudinal section, showing bifurcation of root and canals.

Superior left first bicuspid. Base of pulp-chamber, showing entrance to root-canal.

Superior right second bicuspid. Bucco-lingual longitudinal section, showing root-canal.

Superior right second bicuspid. Base of pulp-chamber, showing entrance to root-canal.

Inferior right first bicuspid. Bucco-lingual longitudinal section, showing root-canal.

Inferior left first bicuspid. Base of pulp-chamber, showing entrance to root-canals.

Inferior right second bicuspid. Bucco-lingual longitudinal section, showing root-canal.

Inferior right second bicuspid. Base of pulp-chamber, showing entrance to root-canal.

Superior left first molar. Bucco-lingual longitudinal section, showing root-canals.

Superior left first molar. Mesio-distal longitudinal section, showing buccal root-canals.

Superior left first molar. Base of pulp-chamber, showing entrance to root-canals.

Superior right second molar. Bucco-lingual longitudinal section, showing root-canals.

Superior right second molar. Mesio-distal longitudinal section, showing buccal root-canal.

Superior left second molar. Base of pulp-chamber, showing entrance to root-canals.

Superior left third molar. Bucco-lingual longitudinal section, showing root-canals.

Superior right third molar. Mesio-distal longitudinal section, showing buccal root-canals.

Superior right third molar. Base of pulp-chamber showing entrance to root-canals.

A B C

A, superior third molar; *B*, superior third molar; *C*, inferior third molar.

Inferior left first molar. Mesio-distal longitudinal section, showing root-canals.

Inferior left first molar. Base of pulp-chamber, showing entrance to root-canals.

Inferior left second molar. Mesio-distal longitudinal section, showing root-canals.

Inferior left second molar. Base of pulp-chamber, showing entrance to root-canals.

Inferior left third molar. Mesio-distal longitudinal section, showing root-canals.

Inferior left third molar. Base of pulp-chamber, showing entrance to root-canals.

of pulp tissue. Prophylactic measures should be instituted wherever possible prior to root-canal therapy. If for any reason this cannot be accomplished, the mouth should be thoroughly sprayed with an antiseptic solution. All teeth or roots that are condemned to extraction should be removed and pathological conditions eradicated.

After applying the rubber dam with the usual aseptic precautions, remove food debris and soft dentine. Swab cavity with 95% alcohol and dry with sterile cotton pellets. Seal with a dressing of eugenol for from 24 to 48 hours. Eugenol performs a two-fold duty as an anodyne and antiseptic to the pulp tissue.

Methods of Devitalization. Choice is taken according to the individual case, namely: (1) conductive and (2) infiltration anesthesia using a 2% novocain suprarenin solution for both, (3) pressure anesthesia using cocaine hydrochloride pellets, 1/12 gr., and (4) sealing a medicament close to the pulp chamber which will cause death of the pulp. The use of arsenic is discouraged as it increases inflammation and if improperly sealed will cause a necrotic condition of the contiguous gum tissue. It may penetrate the apical opening, causing destruction of the apical pericementum and surrounding structures. If conditions are such that the case will not permit extirpation by anesthesia, an application of desensitizing paste, sealed close to the pulp for about 72 hours, will devitalize without any discomfort to the patient or without being attended by any danger. In many instances infiltration or conductive anesthesia is insufficient, so we are obliged to resort to pressure in conjunction with either of these two methods. The author avoids the pressure method wherever possible on account of danger of forcing infection through the foramen. Never attempt pressure in partially decomposed pulps.

Pulp Removal. In opening the pulp chamber one general principle should be observed to obtain access to the pulp canal in a direct line with the long axis of the tooth. Never attempt to enter a pulp canal through an approximal, buccal or lingual cavity without first extending it to a point which would give direct access, as it is physically impossible to cleanse thoroughly or fill the canals unless the above rule is observed. Care must be taken not to use any undue pressure in order to avoid drilling beyond the floor of the pulp chamber in multi-rooted teeth, penetrating the bifurcation of the roots. Remove all superficial decay with excavators and overhanging enamel with chisels. Pulp roof may be removed with hoe and hachet excavators. In incisors and cuspids enough dentine should be cut away to expose the horns of the pulp. In lower molars it is often essential to cut away the mesial wall in order to observe this rule. The same applies to the upper molars where sacrifice of the buccal wall is necessary. Swab pulp chamber

with 95% alcohol after removing bulbous portion of pulp with spoon excavator.

After entrance of canals has been explored with the aid of the root canal picks, a pathfinder is inserted in the canal and passed along the wall until the apex has been reached. This instrument is very flexible, and if there is no inorganic obstruction in the canal, by gently teasing, we shall be able to reach the apical opening, which we are aided in determining by the sense of touch, knowledge of the anatomical length of the root in question, the radiogram, and root canal gauge. By selecting a fine-barbed broach so that the diameter will not interfere with the instrument passing toward the apex, it is less apt to break off. The texture and extension of the barbs on a fine broach are sufficient to entangle the pulp. Broaches mounted on handles are preferred to those that require separate holders. These holders are uncertain of properly gripping the broach, and in many instances the holder is only revolved and the broach remains stationary in the canal. Gently pass broach along the wall of the canal toward the apical portion, which may now be ascertained by the gauge or by the depth to which the pathfinder has penetrated. By using a small piece of rubber dam perforated by the pathfinder we can also gauge the depth of penetration. With a few turns of the broach we can usually extirpate the pulp intact. Irrigate canal with sterile water until hemorrhage ceases and then apply absorbent points saturated with 95% alcohol, also thoroughly cleaning pulp chamber. Use the apexographer or apical curette for removing any remaining pulp tissue near apical portion. Schreier's sodium and potassium is now introduced into the canal to destroy any remaining organic matter. The apical curette is the most convenient instrument for this purpose as a minute quantity should be introduced at a time.

Surgical Cleansing of Pulp Canals. Enlarge orifice of canals with small-sized right-angled Gates Glidden Drill. The drill is permitted to penetrate the canal only about 2 mm., in order to permit the point of the irrigator to enter. Right here it might be added that attempt should never be made to enlarge canals with burs or engine reamers. These instruments are probably the greatest hindrance to the successful surgical cleansing of pulp canals. The course of a curved root cannot be followed, due to lack of sufficient flexibility with the result of mutilation of the canal, either making a shelf which is very difficult and in many instances impossible to pass, or else perforating the root. Irrigate canals freely with warm sterile water; dry with sterile cotton-wrapped broaches; and again irrigate freely with a 1/500 solution of bichloride of mercury in peroxide of hydrogen. Dry with sterile cotton-wrapped broaches or absorbent points. For inorganic obstructions, tortuous or constricted canals, use sulphuric acid paste. Use

pick previously dipped into the paste with an alternating pick and pumping motion. Neutralize with sodium bicarbonate paste, and proceed with irrigation as previously described. Insert sterile diagnostic wire provided with a hook or loop at the larger end. Seal with sterile bibulous paper covered with temporary stopping and a thin layer of cement. Get radiogram. If the operator has an x-ray machine, diagnostic wires or any other flexible canal instrument may be used. The dam holder is released and a radiogram taken with the rubber dam over the tooth to avoid infection; diagnostic wires or instruments are removed, holder readjusted and tooth sealed as described. Do not fill canals at the same sitting after removing vital pulp. Wait for from 24 to 48 hours. At the next appointment apply rubber dam with the usual precautions, remove dressing, etc., and enlarge with files, commencing with file No. 1 and then using No. 2, Style B for posterior teeth Style D for anteriors. Rat-tail files are used subsequently with a pull motion from the apex, withdrawing any debris that may be in the canal.

Flood canal with 95% alcohol. After a few minutes remove with absorbent points, and reflood with chloro-rosin solution, permitting the chloroform to evaporate. The chloroform diffuses into the alcohol and, due to its power of penetration and rapidity of evaporation, will aid in drying the canal more thoroughly than the use of compressed air, or chip blower, which may also force micro-organisms into the canal. Normally, chloro-percha will shrink away from the periphery of the canal, but the rosin coating causes it to adhere to the wall, and in hardening the shrinkage will take place in the center of the mass. We are now ready to proceed with the filling of the canal, which will be described in a later article.

17 West 42nd Street.

(To be continued)

Amalgam Restorations—A Progressive Group Clinic*

Second Clinic

Cavity Preparation for the Simpler Amalgam Restorations

By Robert M. Winslow, D.D.S., New York, N. Y.

Cavity preparation involves all those mechanical procedures used in removing tooth substance prior to the insertion of a filling and those changes and extensions necessary to resist stress and prevent recurrence of decay.

There are six principles of cavity preparation for amalgam restorations, as follows:

I. Obtain outline form.
II. Obtain resistance form.
III. Obtain retention form.
IV. Remove remaining decay.
V. Finish enamel walls.
VI. Perform toilet of cavity.

Outline form (Principle I) is that part of cavity preparation which determines the area of tooth surface to be included within the external enamel line. There are nine rules of outline form, as follows:

1. *Extend margins to include all decay.* After gaining access, extend the cavity outline beyond the surface decay which you can see upon the tooth, in order that sound enamel may be visible.

2. *Extend margins to full length of enamel rods supported by sound dentine.* If necessary, further extend the outline to accomplish this. Should the enamel rods not have sound dentine as a base, this undermined area would tend to break down under the force of occlusion.

3. *Extend margins to where they will be cleansed by food.* The margins should be carried to an area where they will be touched by the excursions of food during mastication, resulting in a natural cleansing. Especially is this true at the proximal, for the interproximal space is an area of great susceptibility to decay, due in a great measure to the inability of the food to gain access between the teeth.

4. *Cut developmental grooves squarely.* The outline should neither follow a developmental groove nor parallel it so closely as to leave a thin strip of intervening enamel. Inasmuch as these grooves are ideal lodging-places for bacterial plaques, there would be a tendency to decay at those points if the grooves were not cut squarely.

* Given at the Academy of Medicine, New York, December 3, 1923, by the Bellevue Hospital Dental Clinic Club, under the direction of John T. Hanks, D.D.S.

5. *See that the cavity outline includes all fissures.* During the formation of a tooth the enamel plates join to form a groove. Here there may be imperfections in calcification, known as pits and fissures. These fissures provide a nidus for bacteria with resultant caries (Fig. 5). In order to assure the success of the filling, include all fissures in the preparation.

6. *Avoid extreme eminences of enamel.* The extreme eminences, meaning those at or near the tips of the cusps, receive the greatest stress during mastication. Should it be necessary, in order to remove all decay, to take the margins to an eminence, the enamel will tend to break down at that point, due to the increased stress and the fact that the enamel rods radiate there. To prevent fracturing and to compensate for the increased demand on this area, it is considered good technic to protect the cusp, carrying the margin down approximately one-third the length of the cusp.

Fig. 5

7. *Avoid too acute angles.* Where two walls meet, this junction on the outline is made in a segment of a circle rather than in an acute angle, because amalgam depends upon bulk for its strength and it is difficult to have bulk in an acute angle. Therefore, so as to have greater strength, use segments of circles in the outline.

8. *Make parallel walls at right angles to the seat.* This rule reminds you that you should keep in mind succeeding steps and, as nearly as possible, have parallel walls at right angles to the seat, thereby facilitating the technic yet to be considered.

9. *Extend for prevention.* This involves the carrying of walls on the proximal out to a point beyond the contact point, which will allow the margins to be cleansed not only by excursions of food but also by lips, cheeks, tongue, and toothbrush. This will in all probability prevent a recurrence of decay which might exist provided the margins had bordered on the interproximal space, where there is greater liability to caries.

Resistance form (Principle II) is that form of cavity preparation

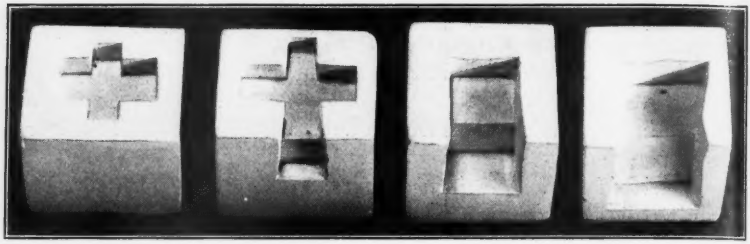


Fig. 6

which enables the filling to withstand the stress of mastication. For this second principle we have but one rule—the boxlike preparation or flat floors with parallel walls at right angles to the seat. Take for example the first three square blocks representing the geometrical design of teeth in Fig. 6. In both the Class 1 and Class 2 types of cavity in these geometrical figures the flat seat and parallel walls at right angles to the floor are outstanding features.

Retention form (Principle III) is that form of cavity preparation which prevents the filling from being displaced. Retention form depends on the application of a combination of the boxlike preparation explained above and a dovetail arrangement. Should the preparation be rounding or socket-like, as in Fig. 7, the force of mastication would tend to displace the filling; so, to overcome this feature, an application of the boxlike preparation applies in retention form as well as in resistance form. A dovetail is allowed on the occlusal surface which will prevent the filling from being displaced mesio-distally, and also a slight dovetail on the proximal surface to prevent vertical displacement, care being taken not to remove too much tooth structure so as to undermine the walls. The retention form may be seen in the fourth geometrical design of teeth in Fig. 6, and also in the Class 2 preparations in Fig. 8.

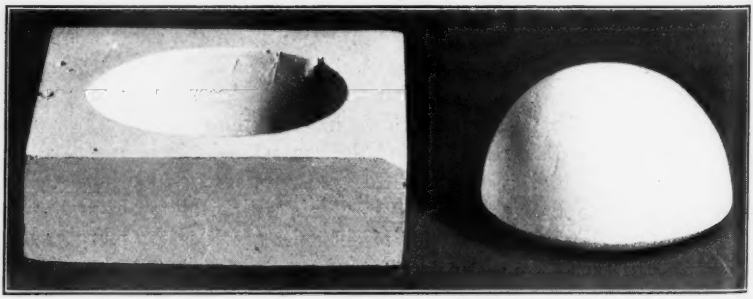


Fig. 7

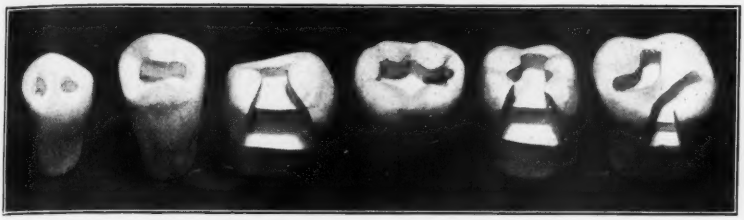


Fig. 8

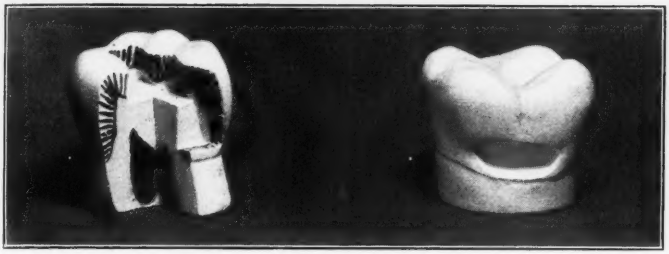


Fig. 9

With the largest excavator possible remove any remaining decay (Principle IV).

Smooth the enamel walls with chisels (Principle V). Figure 9 reminds us that the enamel rods radiate from the dentine, gingivally toward the gingival, gradually becoming perpendicular to the dentine until near the occlusal surface they radiate occlusally. It may be noticed from this model that this arrangement allows each margin of

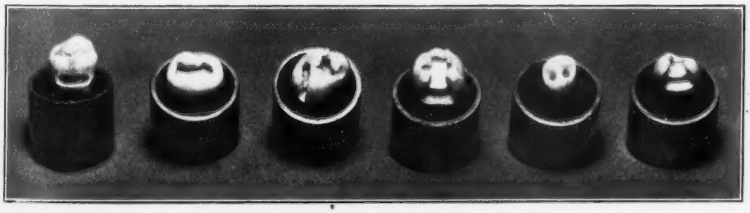


Fig. 10

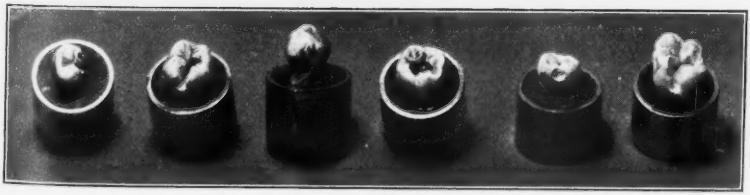


Fig. 11

the cavity preparation to have full-length enamel rods supported by sound dentine except at the gingival margin, where rods with no support remain. By making a bevel here, the shortened enamel rods are removed. Because of the inferior edge-strength of amalgam, a complete cavo-surface angle is contra-indicated, inasmuch as the small amount of amalgam necessary to fill the bevel would have a tendency to break off under extreme stresses, leaving an overhanging ledge of tooth substance. It is necessary to bevel only at the gingival margin.

The final step in the preparation is the toilet of the cavity (Principle VI). Remove any foreign particles and small pieces of tooth structure. Figures 8 and 10 show properly prepared cavities, while Figure 11 demonstrates some commonly improperly prepared cavities.

In the preparation of these cavities the following instrumentation is given, the numbers of instruments in these tables corresponding to Black's instruments.

TABULATION OF INSTRUMENTS USED IN PREPARING CAVITIES FOR AMALGAM FILLINGS RECOMMENDED BY THE BELLEVUE AND ALLIED HOSPITALS DENTAL CLINIC CLUB

The numbers given below refer to the set of G. V. Black cutting instruments. The first numbers given are the ones usually used.

Outline	Resistance	Retention	Convenience	Removal of Remaining Decay	Finish of Cavity Margin
PIT AND FISSURE CAVITIES					
Small, round, or inverted cone bur. Chisel No. 81, 83, 84, or 86.	Inverted cone and fissure bur.	Same as Resistance.	None.	Spoon excavator No. 63, 64, 65, or 66.	Chisels, fissure bur and small stone.
PROXIMAL CAVITIES IN MAXILLARY AND MANDIBULAR PREMOLARS AND MOLARS					
Chisel No. 81, 83, 84, 86 or hatchet No. 25. Square end fissure bur. Enamel hatchet No. 49 or 50. For step, same instruments as for pit and fissure cavities.	Chisels and gingival margin trimmer Nos. 79 and 80. or Enamel hatchet No. 49 or 50, hatchet No. 7. And hoe No. 25	Same as Resistance.	Small inverted cone bur, or hoe No. 30, or 36.	Same as above.	Chisel No. 81, 83, 84, or 86; for mesial, gingival trimmer No. 79 or 80; for distal, hatchet No. 7.
LABIAL, BUCCAL AND LINGUAL CAVITIES					
Chisels, inverted cone, square end bur.	Same as Outline.	Inverted cone bur and hatchet No. 12 or 18.	None.	Same as above.	Chisels, hatchet No. 7. Large round bur. Small stone.

(The third part of this clinic will appear in the June issue.)

Full Denture Technic—Campbell Methods*

Second Step—Denture Construction

By R. J. Denning, D.D.S., Kissimmee, Fla.

The technic described in the previous step of this clinic left a depression about the cast, in the boxing, to permit moulding the baseplate and finishing the margins of the dentures into the depression in such way that it will not be necessary to finish these margins by laboratory methods. Use a stiff shellac base for baseplates. Mould it approximately to shape and trim to length. With dry heat, turn it back upon itself so that it is too short. With the application of more heat, press it down into the depression, around the cast.

Build up a wax bite rim. To make this bite rim adhere to the baseplate, melt some baseplate wax onto the ridge of the baseplate

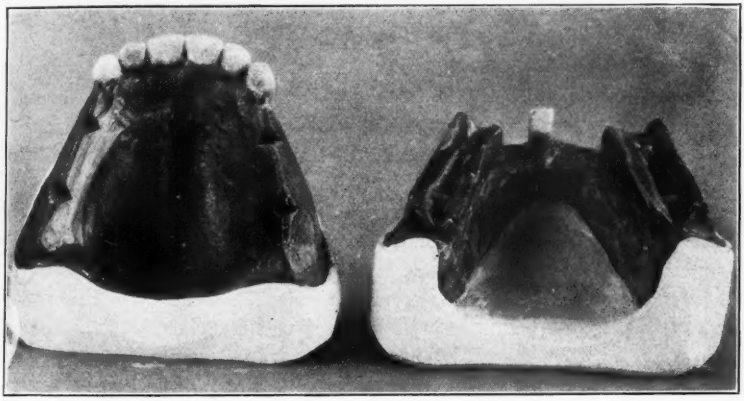


Fig. 1

and put the wax rim on that. Wax for this purpose is obtained by softening and kneading pink baseplate wax until it is a homogeneous mass, forming it into a roll or tracing stick and melting from that. Bring the rim down onto the crest of the ridge all the way around. Invert the cast, baseplate and rim on an aluminum slab and press down until the rim is approximately the right height. Warm the aluminum slab and the bite rim will come away from it.

The bite rim is now wider than we wish to use. I use a horseshoe form, by means of which I can trim the labial, lingual and buccal surfaces of the bite rim to the proper form and size.

* A Table Clinic before the Florida State Dental Society, Jacksonville, November 8, 1923.

At this stage the bite plate should be carried into the mouth to determine the height of the rim, which by trial gives the correct lip line. Mark on the labial surfaces of the rims the median line and the location of the angles of the mouth.

Select teeth which are long enough so that when the patient raises the lips, porcelain teeth will show rather than rubber gums. Set up the six upper anteriors in the mouth and arrange them until they are satisfactory for that particular mouth. Make sure that none of the black carding wax remains about the pins and, when it has been cleaned away, flow a little pink wax around the pins of each tooth to facilitate attachment to the bite rim.

The molar and bicuspid region should be trimmed on the buccal and lingual with a warm knife and given a good gloss or polish. Cut two notches on each side. (Fig. 1.) Carry the lower bite plate into the mouth and secure the proper lip line.

Cut out the lower bite rim between the cuspids, clear down to the baseplate. Attach one central so that it is on the line of the curve desired for the lowers and of the proper height.

With a very hot spatula, heat the wax of the posterior portion of the mandibular bite rim to form a pool in the center between solid buccal and lingual walls, down to the baseplate. As this wax begins to cool, place the lower in the mouth, the upper being already in position, and ask the patient to close. When the patient closes correctly and the one lower tooth strikes its proper place on the lingual surface with the upper, you have a correct relation between upper and lower. If the tooth is not in the right place, move it as patient closes. When you remove the upper and lower from the mouth, the notches which were cut in the upper bite rim will guide you in replacement in correct relation. The upper and lower are now ready to mount on the articulator. Mount the casts on the articulator by the method you prefer.

Remove the remaining portion of the bite rims from both the upper and lower baseplates.

Set up the upper bicuspids and molars. They should be so placed that, if projected in a straight line, the buccal and lingual cusps would fall astride the lower ridge. The line of occlusion is midway between the crests of the upper and lower baseplates. In setting these teeth Dr. Campbell follows his usual practice of removing each individual tooth from the black carding wax and flowing pink wax around the pins.

Dr. Campbell's technic for setting the lower is to open the articulator and place the first molar in correct position against the occlusal surfaces of the upper first molar and second bicuspid, as in normal occlusion, and seal with a small quantity of pink wax to the uppers. Attach the other lower posterior teeth to the uppers in like manner. From time to time close the articulator to make sure that there is

sufficient space for the lower teeth to close against the lower baseplate. Cut the baseplate or grind the teeth as is necessary. Add a sufficient quantity of softened pink wax to the lower baseplate and seal with a hot spatula. Close the articulator, imbedding the lower teeth in the softened wax. Seal and allow to cool. Arrange the six lower anterior teeth as nearly over the ridge as esthetics will permit. Leave out one of the incisors, if there is not sufficient room, rather than do much grinding on the sides of the incisors.

The final positions of the posterior teeth and their inclinations are worked out by means of the movements of the articulator, so that you get the points of contact you desire for the case. It is desirable to keep these points of contact as nearly as possible over the crest of the ridge.

Finish the case and vulcanize as usual. Dr. Campbell suggests that, in flasking, plaster alone be used in the lower half of the flask and in the upper half only over that portion of wax to be replaced with pink rubber, the balance to be filled with a hard plaster or artificial stone to prevent movement of the teeth under pressure of closing the flask.

Dr. Campbell takes a corrective bite by softening carding wax under heat, placing a layer of it on the occlusal surfaces of the lower teeth, and carrying the lower plate into the mouth, the upper being already in. Ask the patient to close until he can just feel the porcelain teeth touch. Do not have him bite hard because that is apt to tilt the lower plate. I find it advantageous to cut out a little wax in about three places and pack the teeth together with hard wax. Return the dentures, fastened together in this corrected bite, to the articulator and mount them by pouring plaster directly into the plates. Grind the plates by using carborundum powder No. 80 and glycerine.

Dr. Campbell uses a regrinding technic, after taking a corrective bite, and regards this technic as about fifty per cent of the whole thing, in the way of importance.

In learning to manipulate the articulator in regrinding, it is safer to set the articulator upon a table than to hold it in the hand. If it be held in the hand, the dentist is likely to get pressure in the wrong places and perhaps to break the teeth. The articulator should be manipulated only by the point in front. Let the weight of the upper part of the articulator rest upon the planes of the teeth. In this way it is more likely to establish the desired planes of articulation. With a little experience one gets a feeling that tells one when the teeth are riding smoothly or when they are hitting too hard at some point that will later on displace the dentures. If the teeth be ground in only one position, the results will not be so satisfactory as if they are ground for different positions by slightly advancing the lower model bow. Someone has

suggested the use of a vise for holding the articulator instead of placing it on the table.

Dr. Campbell uses what seemed to us to be excessively large teeth and baseplates. The reason for this, in some cases, may be that he desires additional space for a metal base.

Doing It With Flowers

Spring calls them to the colors, the tulips red and white,
In uniforms of splendor they'll rally over night;
Ten million dandelions are rising at her call,
And soon the morning glories will scale the garden wall.

The war on Tyrant Winter already has begun,
Its outposts are beleaguered by the forces of the sun;
And now on hill and valley the troops of Spring recruit,
And everywhere around us the buds prepare to shoot.

The robins hurry northward, obeying Spring's command,
To spy on Winter's trenches and scout the frozen land;
The daffodils are waiting to storm with yellow flame
And regiments of beauty the field which snowdrifts claim.

With banners proudly waving the hyacinths will come,
The violets following after to bugle and to drum;
And soon ten million blossoms will wake us with a shout
And tell that Spring has conquered and Winter's driven out!

—*The N. Y. Telegram.*

A Method of Making Partial Bar Vulcanite Dentures

By E. A. Bruun, L.D.S., Buenos Aires, Argentina

The desire to utilize the lingual bar principle in the construction of partial dentures and thereby free the palate from a covering of vulcanite has led to the development of the following special technic. It has also several other advantages, in that the lingual bars are not softened, as sometimes occurs when they are subjected to the heat of soldering, and the time required to make the restoration is so much reduced as to place the work within the financial reach of people of moderate means.

Suppose that an upper partial, such as is called for by the condition of the mouth in Figure 1, is to be constructed. The mouth is prepared as for an ordinary partial vulcanite plate. In this case a Carmichael

Fig. 1

crown is prepared for the first right bicuspid and cuspid, a crown being fitted on to the second molar, as shown in Figure 2.

A plaster impression is taken in the same way as for a partial vulcanite denture.

First, calculate and draw on the cast with indelible pencil the location of the bars in the best possible position to resist the strain which will be put upon them by mastication. It has proved in practice to be most important to place the bars so that they compensate each other in the finished case, using the principle which makes corrugated iron more rigid than ordinary sheet iron.

The writer prefers wire loop clamps because the saliva does not

stagnate behind them, thus preventing acid fermentation which causes hypersensitiveness of the collar of the clamped tooth.

Set the teeth in the same way as for an ordinary case, using the regular gold-pinned vulcanite teeth. Do not use teeth with platinum pins because platinum is brittle when alloyed with tin.

Wax the case in the usual way, with the lingual bars, crowns, attachments and clamps in position. Invest the case in one-half of the form of vulcanite flask ordinarily used, making sure that the lingual bars are held firmly in position by a covering of plaster at the centre of the palate, as shown in Figure 3.

Pour the other half of the flask.

Remove the wax in the usual way.

Make a saturated solution of zinc chloride to be used as a flux. It is to be applied with a small brush to the parts to be joined with solder —the ends of the lingual bars, the tooth pins, the clamps, etc.

Fig. 2

Provide an electric soldering iron with a small point; this should be flat in one direction and should have a wooden handle. If such an iron is not available, the work can be done with an ordinary soldering iron or, better still, with a copper bar, flattened and pointed, and with a thickened portion near the point to retain the heat. Such an iron will get the same results, but more time will be required.

A very thin bar of pure tin is used as a solder.

Apply one end of a piece of Angle regulating wire to the pins of one of the teeth and solder it fast with the tin. Bend the wire along the teeth and attach it from pin to pin. Cut it off at the last pin; or, when diatoric teeth are used in combination, the wire may be run

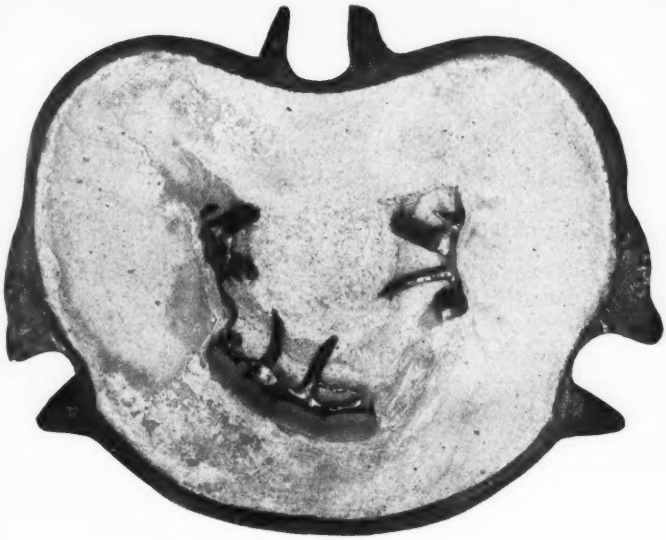


Fig. 3

through the holes from mesial to distal and brought out to be soldered to the lingual bar or clamps.

Solder the lingual bars to the wire, to any clamps, etc., making a unit. If a lingual bar is not long enough at any point, form a loop of wire to span the gap and solder it fast. The vulcanite will fill the loop and act as a reinforcement.

Pack with vulcanite in the usual way.

Fig. 4

The finished denture is shown in Figure 4.

In full vulcanite dentures, where no vulcanite gum can be used in front, the strength of the attachment of the teeth can be greatly increased by soldering the regulating wire to the pins of the teeth in the manner described and then packing vulcanite about pins and wire.

The writer sees the following advantages in this method of constructing partial dentures:

Less vulcanite in the mouth than when the usual method is followed.

Practically the entire roof of the mouth is left free for normal sensation and speech.

The denture is much lighter than the usual gold bar denture.

This form of denture is cleaner than when the whole palate is covered with vulcanite.

The serviceability of dentures without rubber gum in front is greatly increased.

The plate can be made by any mechanic of moderate skill in a very short time.

When necessary to reduce cost, gold-clad lingual bars may be used.

Avenue de Mayo 1012.

A Proposed Remedy for Reciprocity

By Julius L. Bischof, D.D.S., St. Louis, Mo.

In my last article, published in the April issue of THE DIGEST, I promised a possible remedy by which "State Reciprocity" could be accomplished. I genuinely appreciate the fact that no matter what the original proposed remedy may be, it will be regarded by some as impracticable and impossible because of the elements entering into the plan. Any great reform in its pristine stage is somewhat imperfect and needs ironing out, but if the substitute for betterment is possessed of even a germ of an idea for its establishment, it is worthy of consideration as well as fostering.

By prologuing the plan for "State Dental Reciprocity" by the foregoing, do not understand me as apologizing for it, for I genuinely believe that by the adoption of the principles as set forth in the following lines we can bring about this much needed reform. And I wish to reiterate that "this reform is one for which the great majority of the dental profession respectfully ask."

To make some of my points clear in proposing the plan, I will again make the analogy as made in the last article. While seemingly farfetched, there is a peculiar strain of similarity running through the example and the proposal in question.

When the Union was formed it comprised thirteen original states. It continued as such until more states were added to the Union. As the various territorial possessions, one after the other asked for admission into the Union, they were first requested to measure up to all exactments and requirements of the National Government. But it is true that there were originally only thirteen states which formed a nucleus for our present National Government that were ready to enter into an harmonious, economic, professional, social and political intercourse. Later, then, the respective territorial possessions realized that it was to their welfare and advantage to be a part of the National Government, and asked to be recognized as such. From this nucleus of thirteen states grew the present United States comprising the forty-eight states. The admission of the last territory has been within very recent years, evidencing the fact that isolation was impracticable and intolerable.

For a reciprocal relation, we, the dental profession, have a sufficient number of states who believe in reciprocity to form a nucleus for this national movement. It is certain that the great majority of states are willing to enter into reciprocal relations. In conversation with State Board men, I have learned from five (from different states) that about seventy-five per cent. of the states favor reciprocal relations.

This nucleus of seventy-five per cent. to start national reciprocity I shall refer to as the "Union States" and the other twenty-five per cent. as "Territorial States." I use these analogical symbols (Union and Territorial) as illustrations.

Assuming that this number is correct, why could not the Union States form a unit basis for a national reciprocal combination for all states entering into the "combine," granting the privilege to practice in any state within its jurisdiction, after having passed its examination? This so-called "National Board" would, of course, recognize only men who have qualified before this one body and refuse to acknowledge the State Board certificates from the Territorial States unless certain provisions were adhered to. Of course, no dentist practising in the Union States at the time of the reciprocal inception would be compelled to take an examination.

The main provision to make the idea of National Reciprocity popular would be to inject the principle of making a dentist, who fails to qualify before the National Board within six months after graduation, pay an examination fee of five hundred dollars to take the examination. Now what would happen in natural sequence? Dentists in the states who enjoy no reciprocity would from time to time want to practise in the Union States. They would then be compelled to qualify by examination, and, if not within the six months' period, would have to pay five hundred dollars examination fee. The men who practise in the Union States would in nearly all cases be graduates from colleges within these latter states.

After graduation a dentist loses no time in getting started. We will say, for instance, that Missouri is a Union State; Illinois likewise. Jones graduates in St. Louis, Mo., takes the board in St. Louis, Mo., for which examination he will pay a regular examination fee of twenty-five dollars. He starts practising immediately across the river in East St. Louis, by virtue of the reciprocal relation. If he decides to make a change, he will not do so within six months; at least, very rarely. Because of having passed the National Board he will be allowed to practise, of course, in all the Union States.

Now, suppose New York refuses to be a part of the National Reciprocal Board; Smith graduates from a dental college in New York, and starts to practise in Rochester. Statistics again show that he is one of the very, very few who will make a change to another state within the six months' period after graduation. Of course, if at the time of graduation he is doubtful as to his remaining in New York State, he will in that event take the National Board within the six months' period. If successful in passing, he will be entitled to practise in the Union States.

However, if Smith remains in New York State for a year or two

without taking the examination for the Union States and then decides to migrate to another state to practise, and if it so happens that he wishes to enter one of the Union States to practise, it will cost him five hundred dollars to take the National Board.

Suppose this happens a few times in the Territorial States. Is it not very logical to believe that there will be a storm of protest from within these states and a demand that the state be entered in the Union combination? The very idea of such an existing condition will automatically make it very unpopular for states to remain Territorial and outside the National Reciprocal Relations. The very legislative bodies themselves in such states will lend an ear to a few complaints of this character.

The question, of course, is asked, "Will not the Territorial States then raise the ante to take their examinations after the six months' period also?" Possibly so. But are not such states then greatly in the minority? The dentists in the Territorial States will certainly not want such a nightmare hanging over them. The anticipation of being compelled to pay such sum at some later time, in the event of a possible move to a Union State, will in itself force the Territorial States to enter the National Reciprocal or Union States. There could be embodied in the plan a provision that in the event of the Territorial States desiring to enter the Union States they could be admitted automatically without further payment from the individual dentists in said states. The state as a whole could in this event be admitted and added to the Union. Any state's entrance would grant every dentist the privileges as provided by the National Board.

National Reciprocity could be made to have another significance if it is made so that only graduates from the time of its establishment, or a reasonable time thereafter, from Class A Colleges would be eligible for examination. This would certainly tend to do away with the low-rated schools, of which there are too many in existence.

I can hear many readers say, "This plan is too drastic and extreme." We have talked Reciprocity for many years and today we seem to be no closer than before to its attainment. A few states have held it up. It may, therefore, take some extreme measure to bring it about, which if ultimately established will certainly be for the general good of every practising dentist in the United States. The few states that for provincial reasons have stemmed the popular demand for this much needed reform need have no fear of being overrun or overcrowded with dentists, for the law of supply and demand will continue to exist and will work out a well-balanced equation.

Dentists will not flock to the "Sunny South," or the "Golden West," just because of ideal climates and beautiful scenery, if there is not sufficient business to warrant their being there. We cannot live on

scenery, sea-shores and climate; so those who answer the lure will soon come back to "smoky St. Louis," "hectic Phoenix" and "windy Chicago" if the practise of dentistry is better in these places and the kids need shoes.

If my readers think the proposal extreme and impractical, I might state that many achievements are the result of extreme measures which sometimes are necessary for the ultimate good. I point to the greatest extreme we had to go to for the establishment of Universal Peace (whether we have attained it or not), the "World War."

817 Carleton Building.

The great meeting of the A.D.A. in Texas this year is going to mean much for the Dental Profession. It will pay you to fix up your affairs so you can attend.

The Place of Maldevelopment in the Etiology of Pyorrhea*

By J. N. Reddick, D.D.S., Jacksonville, Fla.

(*Continued from April*)

To classify the normality of maldevelopment, it is necessary to have a beginning or a unit on which to begin. This place shall be known as the abutment. To speak of an abutment, one would think it necessary for a tooth to be out or missing. Not so. The six- and twelve-year molars may represent each unit opposite each other. So this unit is the abutment. I also refer to the arch with the abutments as the abutment arch, and we have the classes of maldevelopment of Type III thus:

ORAL MALDEVELOPMENT

TYPE III—CLASS 1

All abutments in normal occlusion; contact points of both arches in normal apposition; no elongations; applies to either arch anteriorly, unilaterally or bilaterally.

TYPE III—CLASS 2

Mesial abutments, distal to normal occlusion; distal abutments, mesial to normal occlusion; elongated occluding tooth or teeth; apposition of contacts distorted in both arches; applies unilaterally or bilaterally.

TYPE III—CLASS 3

Distal abutments mesial, lingual, labial, or buccal to normal occlusion; elongated occluding tooth or teeth; apposition of contact distorted in both arches bilaterally; applies to either arch anteriorly.

TYPE III—CLASS 4

Variations which cannot be classified.

I have classified each class according to its normality and location and each type according to its etiology. I will illustrate Class 2 of Type III and show you its relation to pyorrhea. Class 2 of Type III is a unilateral condition, but sometimes it is bilateral, and we shall assume this case bilateral, and proceed. Assuming the lower six-year molar is gone at the age of twelve years or any other age up to 80, the older the less abnormal the development will be. This molar is lost for some reason we do not know, but let us assume it has decayed away

* Delivered before the Florida State Dental Society, Nov. 8, 1923.

to a stage where it ached and extraction was necessary. Again let us assume that this tooth is not gone, but half of the crown gone and the twelve-year molar has moved mesially into this cavity, that the dentist is resorted to and is not able to restore it to its normal position. If you will notice, Type III of maldevelopment is caused by pressure and this pressure comes from three sources, which I will take up below.

Looking at this class of maldevelopment, here is the situation: the upper six-year molar has elongated from pressure, not gravity. The lower twelve-year molar has moved mesially by pressure from the third. The lower second bicuspid has moved distally, all carrying with them their adjacent teeth. Now consider the upper arch. The elongated tooth has by pressure moved the twelve-year molar mesially and the bicuspids, cuspids and incisors distally. The incisors usually move lingually and distally, both upper and lower. Then we have distorted contacts on both arches, upper and lower. If the case is unilateral, the other sides distort gradually but slowly, not often fast enough and sufficiently to strangulate the circulation to the peridental membrane, depending on the age and habits of the patient. Now let us consider the elongated tooth. This tooth, being wider across its crown from contact to contact and smaller the nearer its neck, has created quite a bit of space for the movement of other teeth, ranging from one to five millimeters. We find the free gingiva of the long tooth exposed and at very high tension. The free gingiva is turned back, giving the gingiva access to abrasions not on the long tooth alone, but every tooth in the arch is pulled to an abnormal position, possessing high tension on the gingiva, creating inflammation and soreness of the gingiva, a condition known as "gingivitis."

Now let us turn our attention to the apices, and what do we find there? We find that the ends of the roots have pressed the peridental membrane distally on the molars, and the bicuspids mesially and labially on the cuspids and incisors, strangulating the blood supply to this membrane, and at the alveolar crest mesially on the molars, and distally on the bicuspids, cuspids and incisors, strangulating the blood supply to the alveolar group, causing cicatricial tissue mesially and distally on every tooth respectively. Remembering this, let us study the occlusion.

The long tooth having no opposition, with an infected gingiva a cicatricial tissue, the infection rapidly preys there, and when the tissues are sufficiently destroyed we have a loose tooth. This is the second stage of pyorrhea. We find the molars, bicuspids, cuspids and incisors are not steady, or we may observe some of them have overcome the tension and shock to the peridental membrane; blood supply is re-established and the teeth tightened up and functioning normally again. We find each tooth on the upper and lower arch occluding with pressure directed

toward the long tooth and the space of the lower six-year molar which is missing. This is called by some "traumatic occlusion." I call it a result of maldevelopment and not a cause of the infection, nor infection the cause of it. Notice this situation and, if in a well-kept mouth, you will find the infection has cleared up in numerous cases, by what cause I have not been able to understand, unless of prophylaxis or restoration of the blood supply. In other cases we notice, even in this case illustrated, one tooth has a very deep pocket on one side of the tooth and others cleared up at the gingiva. I attribute this to non-restoration of the blood supply to the peridental membrane, regardless of prophylaxis.

No doubt you wonder whence so much pressure. Pressure, as I mentioned above, is of three or four sources. Dr. Cryer has very well illustrated that the muscles of the mandible will change the shape of the jaw. Dr. Angle has beautifully illustrated the fact that pressure is the etiology of his classes of malocclusion, so I shall try to illustrate that pressure, not gravity, will elongate a tooth. In the case as illustrated above, what causes the twelve-year molar to move mesially on the lower jaw when the six-year molar is gone? It is pressure from the eruption of the third molar. What causes the bicuspids, cuspids and incisors to move distally? Pressure from the muscles of the face. causing the jaw to yield at the weakest point, the place where the tooth is out. If you have ever treated a fractured jaw you readily know the pressure from the muscles. In the teeth of the lower jaw, we have the molars mesial to normal, we have the bicuspids, cuspid and incisors lingual and distal, distorting normal occlusion even on the opposite should the class be lateral instead of bilateral and one of long-standing.

Now, what is maldevelopment? Maldevelopment is abnormal, maturation of an organ, cell or tissue. Oral maldevelopment is an abnormal development of the oral cavity, teeth, cells or tissue supporting them.

The maldevelopment we are dealing with is of the oral cavity. Hence oral maldevelopment is a condition dealing with the several functional units of the oral cavity, such as the arches, the tissues supporting them, as well as the individual tooth. The action of the muscles of mastication and expression in occlusion is very different. This action means more than the coming together or blocking up of an opening. This word means exactly what it says when it is referred to as development. We have in it the rearrangement of tissues and organs to normal occlusion, and when we have an occasion to say a "maldeveloped arch" we then grasp the type of maldevelopment, remembering the etiology of each, thus making it very important in a diagnostic way for the dentist.

To illustrate: if I mention Type II of maldevelopment, then we

know it means Angle's classification of occlusion. Statistics show that ninety per cent of the pyorrhea treated by me in the past six years has come by the way of maldevelopment in one of the three types, and the other ten per cent by way of tartar, mercury and undiagnosed causes. There are different types of pyorrhea; some yield readily to treatment, some not. There is a type without circulation in the peridental membrane and a type with circulation in the peridental membrane infected. The latter is of an abrasion; the former is of a cicatricial peridental membrane. The latter yields very readily to treatment because there is circulation. I cannot deal with types of infection at this time.

We find some cases where it is impossible to get a history of the condition and from observation impossible to classify maldevelopment. These classes hold me back on a fair estimate of a percentage to each type or class of maldevelopment. But when I say that maldevelopment is a cause of ninety per cent of the cases I treat, then I feel justified in making an effort to classify it, as well as give it a name, that we may come closer to the true etiology and have more success in treating it, as well as to bring to your attention one more important reason why a tooth should stay in the mouth. Types I and II cause less pyorrhea than Type III.

Studying together as we have in this thesis of oral maldevelopment, what are our conclusions? Neglect, abrasions and pressure produce maldevelopment; maldevelopment leads to disturbed function; and disturbed function prepares the way for infection.

706 Professional Building.

Protest from New York Relative to the Action of the Officers of the American Dental Association

Resolved: That the following communication be sent to the dental journals, including The Journal of the American Dental Association, with the request that they publish the same, that the entire membership of the A.D.A. may be apprised of the injustice which has been done to the men in the State of New York by wrongfully withholding from them The Journal of the A.D.A.

An Open Letter to the Members of the A.D.A.

It is the complete ignoring of the written word of the A.D.A. Constitutional By-laws against which our State Society officers are protesting. As proof of the extreme methods to which the A.D.A. officers have resorted in order to force our members into obedience to their dicta, the following evidence is presented. The Journal of the A.D.A. for February, 1924, carried the following editorial. (The words italicized are italicized by us.)

"The dues for 1924 are $4.00, which include the annual subscription to *The Journal of the American Dental Association,* and they are due January 1. The March *Journal* will not be mailed to any delinquent members. *The ruling of the post-office authorities is adamant on this proposition.* Therefore, any dentist who has not already paid his State Society dues for 1924 should do so immediately. The State Society officers are cooperating with the American Dental Association and will immediately, on receipt of the State dues, mail the national dues to the national office.

"It will be impossible for us to furnish back copies, as we are printing only enough to supply our bona fide mailing list. An immediate compliance with this notice will save the delinquent member a great deal of confusion and misunderstanding. *A delinquent member is one who does not have his 1924 membership card on January 2, 1924.*"

Note particularly the statement that *a delinquent member is one who does not have his 1924 membership card on January 2, 1924.* It follows logically that one who did have the 1924 card on January 2nd is not a delinquent member. Our members had their 1924 membership cards prior to the Cleveland meeting, consequently they are not delinquent members, and therefore their March Journal has been wrongfully withheld.

"The ruling of the post-office authorities is adamant on this proposition"; that is to say, the sending of a magazine of this type to delinquent members.

A copy of the above was sent to the postal authorities at Washington and the following reply was received. Again we italicize words to show our members just how "adamantine" the postal rules are regarding the stopping of a Society Journal.

My dear Sir:—

In reply to your letter of the 29th ultimo, you are advised that this office *has made no such ruling* as quoted in your letter from The Journal of the American Dental Association, nor has there been any modification of the postal regulation providing that *a publisher may continue to mail his second-class publication at publishers' second-class rates of postage to a subscriber for the period of one year from the date of expiration of the subscriber's subscription* in order that the publisher may have an opportunity to obtain a renewal thereof.

However, it is optional with a publisher either to discontinue the mailing of publication at the date of expiration or to continue mailing it thereafter for the period above stated for the purpose indicated.

Questions involving the legality of an increase in membership dues which include subscription to a publication or of penalty for failure to pay such or other membership dues or to pay the same before a stipulated date, as stated in my letter to you of the 27th ultimo, questions for settlement between the respective parties themselves, through the courts or otherwise, such questions are not for the determination of the Post Office Department.

Sincerely yours,

(Signed) A. Swing Gloves,
Third Assistant Postmaster General.

The above was read to the Board of Trustees at their meeting in Chicago on March 7th, and yet on March 14th they formulated a circular letter containing the words: "Unfortunately the postal authorities permit us to send the Journal only to members in good standing, etc.

Comment is superfluous. The important fact, however, is that the postal regulations permit the continuance of a journal for one year after expiration of a subscription. Would it not have been wiser to do this pending the settlement of an honest difference of opinion?

J. O. Lief, Secretary,
First District Dental Society

George C. Douglass, Secretary,
Second District Dental Society
Components of the New York State Dental Society

Russian Relief Fund Contributions

AMERICAN DENTAL ASSOCIATION

*Previously reported		$10,548.10
NEW YORK STATE DENTAL SOCIETY (additional)		
I. E. Strong, New York	.....	5.00
PENNSYLVANIA STATE DENTAL SOCIETY (additional)		
Eastern Dental Society of the City of Philadelphia	$357.50	
Odontological Society of Western Pennsylvania	101.00	
		458.50
PORTO RICO DENTAL SOCIETY	.....	50.00
Total—American Dental Association		$11,061.60

AMERICAN DENTAL TRADE ASSOCIATION

*Previously reported	$5,462.00	.....
Harmeyer and Brand Co., Cincinnati, Ohio	25.00	.....
Easton Dental Supply House, Easton, Pa	10.00	.....
Total—American Dental Trade Association		$5,497.00

FOREIGN

*Previously reported	$7.17	.....
G. E. Payne Philpots, Victoria, Australia	4.25	.....
		11.42
Grand Total—April 10, 1924		$16,570.02

* Itemized list of contributors published in previous issues of The Dental Digest.

Japanese Relief Fund Contributions

AMERICAN DENTAL ASSOCIATION

*Previously reported	$1,125.00
NEW MEXICO STATE DENTAL SOCIETY	5.00
Total—April 10, 1924	$1,130.00

* Itemized list of contributors published in previous issues of The Dental Digest.

FIRST DISTRICT DENTAL SOCIETY, NEW YORK

The following report has been received from Dr. Herbert L. Wheeler, chairman of the committee from the First District Dental Society, New York, in charge of the Japanese Relief Fund:

Previously reported (April Digest)	$1,104.57
Ten dollars from each of the following New York dentists: W. E. Barnard, A. H. Gunn, J. F. Hasbrouck, V. H. Jackson, C. C. Linton, C. M. Masters, C. F. Rabell, J. P. Ruyl	80.00
Five dollars from each of the following New York dentists: E. W. Baker, E. W. Brown, Guy Campbell, A. W. Currie, C. G. Fletcher, W. C. Keller, H. M. Mass, G. M. Shaw, I. E. Strong	45.00
	$1,229.57

DENTAL LAWS

Summary of Dental License Requirements Throughout the World

By Alphonso Irwin, D.D.S., Camden, N. J.

LABRADOR

This barren land is part of the Dominion of Newfoundland. Any dental service rendered in that region is performed by a physician or surgeon. Consult Newfoundland for requirements.

LADRONE ISLANDS

See Japan for the colonial dental license requirements.

LATVIA

Latvia became an independent state in November, 1918. It formerly consisted of the Russian Province Courland and part of the old province of Lavonia and Vitebesk. Medical education, supervision, requirements and registration are tenaciously adhered to in this and other old Russian provinces.

LEEWARD ISLANDS

These islands form part of the West Indian group. They are divided between the French and British. For the French Islands, consult France for the colonial dental license requirements. Verified January 25, 1924.

The British Islands of this group are regulated by a Medico-Dental law dated ....., 1915. A dental license must be secured from the Acting Governor of the Islands, T. A. V. Best, Antigua, Leeward Islands.

The sections of the law regulating the practice of dentistry state: Section 3. No person shall be entitled to take or use the name or title of dentist (either alone or in combination with any other word), or of "surgeon-dentist," or any name, title addition or description implying that he is a person especially qualified to practise dentistry unless (a) he shall be possessed of and shall produce to the Governor such qualification entitling him to practise dentistry or dental surgery in some part of His Majesty's Dominions or in a foreign country as the Governor shall recognize as furnishing sufficient guarantee of the possession of the requisite knowledge and skill for the efficient practise of den-

tistry or dental surgery; or, (b) he shall pass such an examination as the Governor may consider to be sufficient evidence of such knowledge and skill as aforesaid.

(2) The Governor shall, when satisfied, issue a certificate in the form contained in the first schedule and on the said certificate there shall be paid a stamp duty of forty shillings. Provided, that nothing in this section contained shall apply to medical practitioners qualified under this Act.

(4) No person shall be entitled to recover in any court of law any charge for anything done or supplied by him in his capacity as (a) a duly qualified medical practitioner; (b) a dentist, or (c) a vender of drugs, unless he shall prove at the trial that he is a duly qualified person under the provisions of this Act.

(2) If any person shall practise dentistry without having obtained a certificate as provided for in this Act or shall take or use any such name, title, addition or description as is prohibited under section three of this Act he shall be liable on summary conviction to a fine not exceeding fifty pounds. Verified January 25, 1924.

LIBERIA (Monrovia)

"There are no restrictions whatever placed on a competent dental practitioner in Liberia, and, so far as I know, there is not one located within the confines of the Republic. While the country is in need of good dentists, it is doubtful, in my opinion, if the work among the civilized people is sufficient in quantity to keep one doctor busy all the time, should he locate in any one of the centres of population in the Republic; but, if the man should travel from one place to another within the Republic, I feel sure that he would be able to obtain all the work he could do."

LIECHTENSTEIN

This country is under the administration of Switzerland. See the Swiss dental regulations (Treaty of 1921).

LITHUANIA

Lithuania, one of the former provinces of the old Russian Empire, was proclaimed a republic, November 30, 1918. Kovno is the capital of the State. The population consists of Lithuanians, Poles, Jews, Germans, white Russians, and others. No official information in regard to dental license requirements is available, for obvious reasons.

LORRAINE

Lorraine is now a French Province. See *France* for the dental license requirements.

LOUISIANA, U. S. A.

The laws were enacted in 1880, 1894, 1900, 1902. The last dental law is dated 1906.

The Board of Dental Examiners consists of: R. L. Zelenka, Houma, President; H. J. Feltus, Baton Rouge; J. S. Couret, New Orleans; E. S. Mitchell, Homer; P. N. Cyr, Jeanerette; V. K. Irion, Secretary-Treasurer, 727 Maison-Blanche Building, New Orleans, Louisiana.

The English language, dental supervision, examination and registration are required. Registration must be made with the Louisiana State Board of Dental Examiners and in the office of the Secretary of the Board of Health and in the office of the Clerk of the Circuit Court of the Parish in which the dentist practises; fee $1.00.

Meetings of the Board for examinations may be held in May or June, and October; details of the same are published in the newspapers. License fee $25.00. College entrance requirements for predental education, and a Dental Degree from "an accepted dental college."

Interchange of dental licenses may be made with Alabama, Mississippi, Ohio.

V. K. Irion, Secretary-Treasurer, 727 Maison-Blanche Building, New Orleans, Louisiana.

Information Regarding Examinations in the State of Louisiana, and Rules Governing Them

Applications

Rule I. All persons who wish to practise dentistry in this State must fill out and send to the Secretary of this Board an application, a blank form of which will be furnished by the Secretary.

Rule II. In the case of those wishing to take the examination under the terms of reciprocal contracts existing between this and other States, the application must be accompanied by a letter of recommendation from the Board of Dental Examiners of the other State.

Rule III. In all other cases the application must be accompanied by the applicant's dental diploma. If the applicant is about to graduate, and his dental diploma has not been granted before the examination begins, he may present in lieu of it a certificate signed by the Dean or Secretary of his college, certifying that he has completed, or will complete, the required course in dentistry, and will be awarded his diploma.

Rule IV. Junior students wishing to take the examination in the work embraced in the first two years of the college course must send to the Secretary a certificate, properly filled out and signed by the Dean or Secretary of his college, certifying to the work that has been

completed. Such students may take the examination in all work so certified. Failure to pass in any subject so examined means that he must be re-examined in such subject in his final examination.

Fees

Rule V. The fee for all examinations is ($25.00) twenty-five dollars.

Rule VI. In the case of undergraduates, taking examinations in the work covered in the first two years of the college course, the fee is divided; $12.50 is paid for the junior examination and $12.50 for the final.

Rule VII. No fee will be returned to an applicant after he has filed his application and entered upon his examination.

Examinations

Rule VIII. Theoretical. The examinations shall be written or oral, or both, in the following subjects: Anatomy, Histology, Physiology, Chemistry, Oral Surgery, Pathology, Materia Medica and Therapeutics, Orthodontia, Operative Dentistry, and Prosthetic Dentistry, Crown-and-Bridge-work, Metallurgy, Clinic, and Prosthetic Work.

Rule IX. Practical Operative Dentistry. Each applicant must come prepared to insert gold, amalgam and silicate fillings. Each cavity, when prepared, will be inspected by the Examiner before the filling is inserted. Patient and operating chair will be furnished by the Board, but all materials, and instruments (including engine), must be supplied by the applicant.

Rule X. Practical Prosthetic Dentistry. Each applicant must furnish plaster models for denture, from impressions taken from the mouth, or from zinc dies furnished by the Board; must prepare *Bite-Plates,* mount on a good anatomical articulator, set up teeth with *Normal Occlusion* and finish to the point of flasking. Plaster and gas will be furnished free, and all other materials and tools by the applicant.

Rule XI. The Board, at its discretion, may change or add to any of the requirements under the three preceding rules.

Miscellaneous

Rule XII. In the theoretical work of the examination the applicant must have a general average of seventy-five per cent. In practical operative, and in practical prosthetic work, if the applicant falls below seventy-five per cent he shall fail to pass; but he may be re-examined on that in which he failed at the next regular examination.

Rule XIII. All written examinations shall be on paper furnished by the Board.

Rule XIV. Any one detected in trying to give or obtain aid shall

be dismissed from the class and his or her paper for the entire work will be rejected.

Rule XV. All writing must be legible and, together with spelling and use of correct language, will be taken into account in grading the answers. A correct set of answers to the questions on any one paper shall entitle the writer to the full mark on that subject, viz; one hundred points. Partial or imperfect answers will be graded by the Examiner in accordance with their degree of fullness.

Rule XVI. Applicants are expected to be punctual at all examinations.

Rule XVII. Read the questions very carefully and *do not give any information in the answers that is not asked for.*

Rule XVIII. Write answers in the order of the questions. *Do not copy the questions on your examination paper,* but write the number of each question, in Roman numerals, in center of page before the answer.

Rule XIX. Papers containing the questions must be returned to the Examiner, if he so directs.

LUXEMBURG

The practitioner must be a Luxemburg subject by birth or by naturalization; he must be a graduate of the Luxemburg High Schools and must pass the different examinations before a Commission nominated for special cases by the government. Verified November 1919, A. M. A. Apply to Emile Reuter, Secretary of State, Luxemburg, for full details.

MADAGASCAR

The French dental acts passed for Madagascar are dated 1892, June 5, 1901, August 19, 1907. The French language, supervision, examination and registration are official in this island. No one is permitted to practise dentistry without a French diploma and credentials. See the dental laws of France for other information. Apply to Albert Sarraut, Minister of Colonies, Paris, France; also Governor-General Hubert Garbit, Artananarivo, Madagascar.

MADEIRA ISLANDS

The Portuguese language, supervision and credentials are recognized. The colonial laws of Portugal must be complied with.

Apply to the Colonial Secretary, Lisbon, Portugal, for full details; Maia Pinto, Minister of Colonies.

DENTAL ECONOMICS

An Address to Dental Students as the Dentists of the Future

By Hedley Ham, L.D.S., D.D.S., Melbourne, Australia

(*Continued from April*)

We now return to the general make-up of the dentist. I mentioned as one of the most essential things the knowledge of human nature. In this connection Dr. C. N. Johnson says, "I know of nothing more essential than this matter of studying the characteristics and temperaments of patients." No two people can be successfully managed by the same methods. A quick intuition of the temperament, whims, prejudices, peculiarities of individuals is a wonderful talisman in the management of a practice, and the man who has successfully cultivated this has gone more than half-way toward making things run satisfactorily. The business man, for instance, whose time is valuable wants his work to be done, to talk very little; on the other hand, the social patient must talk, be talked to and entertained. Some patients need coaxing and sympathy, others need to be dealt with firmly and decisively, and so it goes. In fact, it is just tact that is required, and this can be cultivated by observance and experience until every patient is read like an open book.

Another essential is deportment. This has been described as the ace of all requisites in winning the confidence of patients. It combines morals, manners, high ideals, confidence, honesty of purpose, sincerity, everything, in fact, that goes to make up that indefinable something that is called personality, and this also may largely be cultivated.

There is always a psychic influence at work when a new patient presents which acts and reacts on the temperaments of both patient and operator. One dentist will tell you that Mrs. Sharp Tongue is a very difficult woman to work for. She puts him on edge every time she comes, while another one says she is an interesting woman to talk to. Confidence in your ability to render a real service and a desire to do so cheerfully will go far to prepare the way for the reception of many so-called "difficult patients." If you are fearful that you are not

going to do the right thing, you make both yourself and the patient nervous, and you probably don't do the right thing. I know this is so—I have experienced it myself. It is temperament; can it be controlled?

A dentist of a highly strung nervous nature sometimes has to put up a very severe fight, which taxes his reserves to the utmost, and I candidly admit that there are some patients for whom I could never work without being under great strain, but I think that the proper attitude in all of these cases can be cultivated.

Dr. Johnson says that at all times a dentist should be master of himself, so far as his demeanor is concerned. It certainly needs a lot of cultivation. No matter how many little worries or untoward occurrences arise during the day, the dentist should never give way to impatience or ill humor. He must keep everything in its true perspective. We are apt sometimes to make difficulties where none exists. To be a perfectly poised gentleman under every kind of petty annoyance is a wonderfully strong recommendation for any man. It has a compelling influence with his patients to make matters run smoothly, and develops in the office an air of quiet restfulness, which has a far-reaching effect among cultivated people.

In all his professional relations he should be the essence of kindness and, if possible, of tolerance. Any firmness necessary should be invariably so tempered with calm courtesy that his contention for the right should never seem arbitrary or offensive. The power to remain calm in the face of provocation is one of the surest safeguards against mistake. When a seeming affront has been offered to an impulsive dentist either by his patients or by his professional associates, he does well to think overnight before retaliating. It is an evidence of weakness in any man to lose his temper, and one of vulgarity in a professional man. He must learn to have confidence in himself and he should cultivate that trait assiduously. He should distinguish, however, between confidence and conceit. Self-conceit undermines and belittles; confidence builds up a strong and psychic influence. Psychic influence on demeanor and personality when dealing with patients is one that consciously or unconsciously is always present, though men may grow old without ever recognizing the marks it has left on their characters and reputations. A graduate would do well to study and analyze his own feelings toward his patients and to cultivate them along the right lines. Sincerity and honesty of purpose will take him a long way, for the sincere man always has an objective and he gets there little fearful of himself. If your standards are high and lived up to, then you need not fear the result. "Keep in your heart a shrine to the ideal and upon this altar never let the fire die."

The more practical side of deportment embraces:

Personal Appearance and Habits

It might seem superfluous to say anything in regard to personal appearance, but some men are very careless in this respect. Hands and nails, face and hair should be well cared for; linen also should be clean. Ties and shoes are often very untidy or unseemly. White coats or gowns should be looked after to see that they are not frayed, buttons are not off, etc., and should be absolutely clean even if it means frequent changing in a day's work. Be clean and look clean. Wash your hands before attending to every patient, and this should be done while the patient is in the room. It is also well to let the patient see the sterilizer at work. You come into very close contact with your patient, so keep your breath pure, eschew all foods that would taint it, and don't smoke during office hours.

("How to judge patients" and "How to manage them" are the interesting subjects of the next installment. Here you have the boiled-down experience gathered by men of long and successful practice. Don't miss it!)

Information Wanted

Will someone tell me where to get the complete story of the Goodyear Rubber Patents, under which vulcanite came into use for the making of artificial dentures?

George Wood Clapp.

PRACTICAL HINTS

This department is in charge of V. C. Smedley, D.D.S., and George R. Warner, M.D., D.D.S., 610 California Building, Denver, Colorado. To avoid unnecessary delay, Hints, Questions and Answers should be sent direct to them.

NOTE—Mention of proprietary articles by name in the text pages of the DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of propietary articles will be altered in accordance with this rule. This Department is conducted for readers of the DENTAL DIGEST, and the Editor has no time to answer communications "not for publication." Please enclose stamp if you desire a reply by letter.

Editor Practical Hints:

About ten months ago I made a partial lower plate of black gold dust rubber with clasps for a woman about fifty years of age. Since that time she has had trouble with the tip of her tongue being sore and also the corners of her mouth being sore and somewhat cracked on the outside. The gums under the plate are not sore. She has worn a partial upper rubber plate for years. Could the rubber be the cause of this? What would you advise for treatment?

Appreciating any assistance in this case and assuring you that I always enjoy reading your "Practical Hints" in the DIGEST, I remain,

G. H. V.

ANSWER.—I do not see how the rubber can be the cause of this tongue and lip soreness, especially as the lady has worn a rubber plate on the upper jaw for years. Could it be that the edge of the plate or clasps are rough and irritate the tongue? Do the tongue and lips get well of this soreness if the plate is left out for a week or two?—V. C. SMEDLEY.

Editor Practical Hints:

This morning I had the misfortune of breaking a root canal reamer in a canal, and am at a loss to know how to remove it. How can this be done?

I read, with great interest, the "Practical Hints" in the DENTAL DIGEST and have benefited a great deal by them. Have been practising only a short time and have had no experience with a case of this kind.

Will thank you for a reply.

R. P. N.

ANSWER.—There are two ways of removing a broken broach which cannot be reached by fine pointed pliers. One way is to draw two 3x fine barbed broaches through a pair of foil carriers held pretty tightly together so that two sides of the barbs will be somewhat flattened. Place these in a broach holder and work them down so that one broach is either side of the broken broach; then turn the broach holder either forward or backward about one and one-half full turns and then withdraw it. It frequently happens that the broken broach may be engaged by the barbs of the two broaches and will withdraw when they are withdrawn. If there is not room to get around the broken broach then use Hydrochloric acid and a fine path-finder will make the necessary room.

The other method of removing such a broken broach is to rust it out with Iodine Tri-Chloride. This preparation is extremely active and very irritating and must be used with the rubber dam carefully adjusted.—G. R. WARNER.

Editor Practical Hints:

Wish you would help me on the following case: Male child, two years four months old. 50 per cent Negro. Father healthy, mother's severest illness was smallpox some years ago. Child very healthy and normal. Teeth normal as to number and position. The enamel of each tooth has come off so that about half of each tooth is denuded. The occlusal surfaces of the posterior teeth have worn almost smooth. All teeth are sensitive to heat, cold, sweets, and too sore to eat meat or hard bread.

What is this? Why and how caused? How treat it?

W. C. C.

ANSWER.—Your case comes under hypoplasia of enamel, and articles on this subject can be found listed in the Dental Index under D.615.

Such conditions as you describe are usually attributed to inherited lues or some severe disturbance of metabolism during the period of the formation of the enamel. The writer has had one case in which the enamel seemed to cover the crowns of the teeth when they erupted, but seemed almost to melt away soon thereafter. I treated this case with a 25 per cent solution of silver nitrate and was able to control the sensitiveness so that the child could take its food without any apparent discomfort, whereas the teeth were so sensitive before treatment that only carefully warmed milk would be taken.—G. R. WARNER.

Editor Practical Hints:

Please advise me as to what is the best way to remove teeth from old rubber plates. G. W. G.

ANSWER.—Paint the plates with oil or vaseline and heat each tooth separately over a small gas or alcohol flame until the rubber is sufficiently softened that the tooth may be pushed off with the point of an instrument. I do not know that this is the best way, but it is a very good one.—V. C. SMEDLEY.

Editor Practical Hints:

Patient bumped tooth and her dentist treated and filled the root and tooth. She came to me for work some few years later. As she was having poor health I advised an X-ray of the tooth and finally after some time she let me extract the tooth, although it had never given her any pain.

After extraction I found a large area involved as you will see in the first X-ray. I curetted the socket and treated it for about two months. Then swung bridge to the lateral. The socket seemed to heal perfectly.

At the present time she has no pain and gums look normal and healthy. The area seems to be larger and extends around the apex of the lateral, as pictured in the second X-ray.

I should like to know what is taking place, and will thank you for answer. J. R. M.

ANSWER.—It is hard to say from your radiogram of 1919 as to how high the granulomatous degeneration extended, but I believe that it extended approximately as high as it is at the present time, and that there was nearly, if not quite, as much destruction of the lateral incisor root. There apparently has been little if any regeneration of bone; there may be a thin plate on the buccal or lingual, or both, but apparently the spongy bone which should be between the plates is absent. In the absence of any clinical evidence of an infected process I should take it for granted that unless the periosteum was destroyed by the original granuloma, that the osteoblasts were unable to rebuild the bone, and in the absence of any clinical evidence of infection I would say that it would be perfectly safe to leave it as it is. It will be interesting to check it with fresh radiograms in the course of a year and thus determine if there were any progression or bone destruction. It will be interesting to know also if the lateral is vital and if it were vital at the time you placed the bridge.

I suppose you note that there is a cavity on the mesial surface of the cuspid.—G. R. WARNER.

Editor Practical Hints:

One of my patients, a gentleman about thirty-nine years old, has been troubled for the last ten years with a gradual recession of the gingivae on the labial surface of the anterior teeth. The lower teeth have a decided lingual inclination and the uppers are somewhat irregular. The patient has been troubled with these teeth decaying at the gingival and gingival-third; gold foil fillings have been inserted in these teeth from time to time for the last ten years. As the gingivae recedes the teeth decay at the gingival margin, which requires the replacement of the filling.

The patient takes excellent care of his teeth and is very anxious to find some remedy to prevent further recession of the gums.

I write that you may be able to give some suggestions that will be of help in this case.

H. P. R.

ANSWER.—The recession of the gums on the labial surfaces of the anterior teeth is usually a symptom of one phase of periodontoclasia, and in my opinion it is usually caused by traumatic occlusion.

Some writers think that vigorous cross-brushing with a gritty dentifrice will cause this, and possibly it does cause it, but in cases where cross brushing would be considered as the cause or a contributory factor I believe there would be some evidence of the lacerating or cutting of the soft tissues. The continual recurring caries is not so common unless the marginal gingivae is hypertrophied. If it is hypertrophied of course a thorough prophylaxis treatment would be indicated, but I would above all things go thoroughly into the matter of traumatic occlusion.—G. R. WARNER.

DENTAL LABORATORIES

Fundamentals in Cast Clasp Construction

By I. J. Dresch, Toledo, Ohio

(*Continued from April*)

Design and Application. Tooth-bearing Bridge Restorations

A cast clasp for a tooth-bearing restoration (where the masticating load is carried to teeth) is designed, first of all, to carry the stress to the abutments properly and, secondly, to give adequate retention. In the construction of a clasp bridge to supply the lower second bicuspid and first molar, the usual method is to construct clasps that will engage the buccal, distal and lingual of the first bicuspid abutment and the buccal, distal and lingual of the second molar abutment. The molar clasp will be fitted with an occlusal rest on the mesial wing, and the bicuspid clasp with a similar rest on the distal wing. This type of construction causes all the masticating pressure to be placed on the abutments at a point directly beneath the occlusal rests. The springiness of the buccal and lingual clasp wings allows these parts of the clasps to spread under pressure, and thus they do not carry any appreciable part of the masticating load to the abutments.

At this point it may be well to repeat that the saddle of the cast clasp bridge does not carry stress to tissue. While it may move slightly laterally in harmony with abutment tooth movement, and thus massage tissue, the entire masticating load is carried to the abutment teeth. Unless this point is understood and appreciated, there is little chance of the clasps for such cases being properly designed. A typical result of faulty design is shown in Figure 4. A cast clasp bridge was made to supply the missing teeth, with an occlusal rest on the distal of the bicuspid and one on the mesial of the molar. The pressure so abnormally applied caused the bicuspid to move forward slightly and pulled the molar over at a bad angle. The case was worn by a prominent Pittsburgh dentist and was made by a man with a national reputation during a class on clasp bridgework.

Where the abutments are firm and healthy, and especially where they are short, the effect shown in Figure 4 will be seldom seen, except in very long-span cases. But where teeth are slightly loose, and espe-

cially where they are long, the case described is typical of what may be expected with poor clasp design. Occlusion, of course, is also a factor. If the occlusion is heavy on the distal cusps and light or entirely absent on the mesial cusps, the applied pressure will tend to cause the above described shifting of the abutments.

But such movement may be entirely eliminated. Where abutments are long, the clasps should be designed with such occlusal rests as will place the masticating load as nearly as possible in line with the long

Fig. 4

axis of the tooth. Then see that the articulation is balanced. Figure 5 shows clasps which are designed to carry the load to the abutments on a normal angle. The molar clasp is fitted with three occlusal rests on the mesial, palatal and buccal. The bicuspid is fitted with a clasp which engages the mesial, palatal and distal. The two ends of the clasp come just barely over on the buccal, just enough to aid retention. There is an occlusal rest on the mesial, and one on the distal side of the tooth. The first bicuspid dummy is fitted with a rest which has a bearing on the palatal of the cuspid. The rest on the cuspid not only helps to balance the pressure applied, but also prevents tipping. Without this rest heavy pressure on the first bicuspid dummy would tend to lift the two clasps.

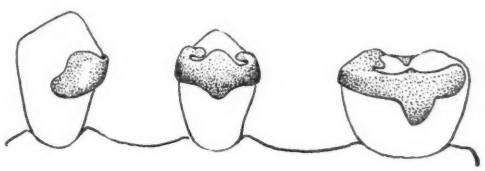


Fig. 5

Retention of clasp bridges is simple, for with a cast clasp at each end of the restoration one clasp coacts against the other. Support must be had in upper pieces to prevent falling away. This is accomplished by a slight extension of the buccal or palatal clasp wings. In Figure 5 it will be seen that there is a rounded extension of the palatal wings of the clasps at about the center of the teeth. These extensions are

allowed to go below the bulge of the tooth crown, causing a slight spring in the clasp before it can be seated. Thus the clasps and bridge cannot move away from the jaw until sufficient force is again used to spread the clasp wings and cause them to spring over the bulge. This principle of having the clasp wings extend on either side of the line of greatest tooth diameter is used to prevent perpendicular movement of the clasp away from the tooth.

As a rule, the value of the clasp or of the metal used is gauged by the amount of springiness it possesses. If the cast clasp for a tooth-bearing bridge is very springy under slight pressure, the bridge may be a failure through looseness. If the clasp will spring easily under slight pressure, it may spring away from the tooth *when the force comes from sticky foods,* especially ordinary white bread. The clasp should be of platinum gold and should be springy, but it should also be heavy enough to require firm pressure in springing the clasp over the contour of the tooth.

When the clasp wings are heavy enough to prevent movement of the bridge from sticky foods, they automatically take care of lateral forces. The bridge if fitted with light springy clasps will often come loose from lateral pressure during mastication. This causes the patient to favor the restoration, avoiding such mandibular movements as will cause a loosening. And, as a rule, the patient does this unconsciously. And when this happens, the masticating effectiveness of the piece is lessened and the remaining natural teeth (usually anteriors) are over-functioned, leading to other trouble.

Due to discrepancies in the materials used in constructing the cast clasp bridge, it is physically impossible to construct one which is perfect-fitting. If the abutment teeth were absolutely unyielding, most of the clasp bridges made would never pass through the dentist's door except in a package of gold scrap. Sometimes the abutment teeth will uncomplainedly allow enough movement to make up for the lack of perfect fit; and sometimes they will not. So the safe way is to use a method which will take care of the discrepancies beyond control. Such a method has been used by Dr. Nesbett since he introduced the cast clasp.

Never cast the bridge in one piece, but make individual clasps of proper smoothness and fit before proceeding. To cast a clasp bridge complete in one operation is an invitation for trouble and usually a forerunner of carelessness and inferior workmanship. If such a piece is cast in one operation and one clasp is quite rough, or the fit poor, how much chance is there of the bridge being remade to correct the trouble? And it is seldom indeed that such a casting is all that the particular dentist will desire. And cast clasp bridges require as much exactness as any other type if the results are to be as good.

A good plan is to have a stone cast of the jaw. The abutment teeth of these cases should be in amalgam or any hard metal which will give a good reproduction of the impression. The fit of the clasps can then be verified on this cast, and the various parts assembled and removed for casting or soldering operations, after which the bridge is seated on the cast. A little black wax, such as teeth are mounted on, is now placed in the inside of each clasp at a point next the bridge. The bridge is then seated on the cast, as far as it will go without undue pressure. The bridge is then removed, and at the points where undercuts are present the black wax will have been forced away from the clasp, exposing the metal. Take a bur and slightly grind away the metal at these points, and proceed as before, testing with the wax and grinding

Fig. 6

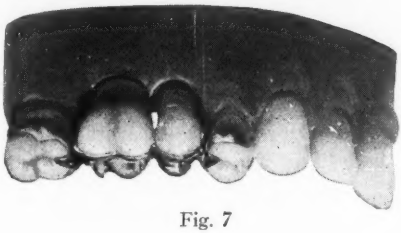


Fig. 7

away the metal until the bridge can be nicely seated to position. When the case can be properly seated on the cast, it is patent that it can be seated in the mouth without calling upon the abutments to compensate for inaccuracies.

The method just described not only takes care of the changes or loss of relationship due to the instability of the materials we must use, but also parallels the clasps or, rather, removes any undercuts.

Following the technic from start to finish, beautiful and very serviceable clasp bridges can be made. Where teeth are firm and without cavities, the clasp bridge offers the dentist and the dental technician an opportunity for genuine service—a chance to build up without tearing down. On the other hand, improper design and disregard of essentials

have caused untold thousands of clasp bridges *to tear down without building up.*

Figures 6 and 7 show two clasp bridges constructed in the laboratories of Mr. Henry P. Boos of Minneapolis. These two pieces are a compliment to the vision and skill of the artist-technician who constructed them. What has often been a makeshift is here turned into a work of art. The porcelain pontics combine to make the restoration sanitary and comfortable as well as beautiful.

This construction also stands as the best proof that the saddle of a cast clasp bridge does not carry stress to tissues. For if the saddle carried stress, so would the porcelain pontics. And if the pontics carried stress, the piece would be a failure through irritation of the tissue.

Cooperating With Your Cooperator—The Dental Laboratory

By B. H. Miller, New York

It is self-evident that when the labor of two parties is necessary to the performance of a given task there must be complete coordination in order to insure success. Anything short of perfect harmony is bound to result in failure.

There are always two parties concerned in the construction of a dental prosthetic appliance. First, there is the dentist, who plans the appliance; and, second, the laboratory which builds it. The dentist and the laboratory, therefore, are collaborators. Since the laboratory man never sees the patient and has nothing to guide him as to conditions in the mouth except the dentist's impression and models, you can readily realize how important the preparatory steps are in the final success of any case.

In the last years there have been many refinements in dental prosthesis. Among these are porcelain jacket crowns, Carmichael crowns, and porcelain-faced gold crowns. All of these have been devised to eliminate or minimize the display of gold in the mouth, provide strength, and conserve the tooth pulp. They require that necessary thing called "preparation," however. Otherwise they will surely fail.

The preparation of a jacket crown calls for no involved technic, whether the case at hand is building up a broken-down molar or restoring a peg-shaped lateral. The tooth should be prepared so that its sides terminate in the shoulder below the gum margins. All surfaces should be relieved to allow for a substantial and uniform layer of porcelain. A copper band should be fitted around the tooth, filled

with modeling compound, and used to obtain an impression of the prepared tooth. The impression must be throughly chilled before it is removed. A wax bite should be furnished of pink baseplate wax, as well as a baseplate wax impression of several adjacent teeth. The shade desired should be indicated.

These are the steps necessary to the preparation. They are not many, but they are all necessary. If any one of them is slighted, the finished crown may be a disappointment.

The same holds true in preparing a tooth for a Carmichael crown. The lingual surface of the tooth must be properly treated. The slots in the proximal surfaces must be well defined and parallel. The horizontal slot which connects the two lateral slots should be equally well defined.

If these necessary steps are taken and the proper impression and bite are furnished, the Carmichael crown should meet your expectations. If the preparatory work is indefinite and haphazard, the crown may prove a failure.

The preparation necessary for porcelain-faced crowns is so simple that failure seems almost impossible. It calls for but three simple steps:

1. Cutting the interproximal spaces with a safe-sided disk, exactly as you would for a gold crown.
2. Relieving the incisal edge, or occlusal surface, as the case may be, to allow for proper reinforcement.
3. Slight grinding on the labial or buccal surface of the tooth to allow for the addition of 22-gauge porcelain. Rounding off the mesial and distal sides toward the facial, or buccal, will make it possible to carry the porcelain farther back into the interproximal spaces.

When these simple preparatory steps are completed, the rest is easy. Take a plaster impression, a bite with pink baseplate wax, a wire measurement at the neck of the tooth, and the shade.

It seems hardly possible that any of these details might be overlooked, and fortunately most dentists appreciate the necessity of careful preparation and are rewarded by a high percentage of successful results. It is for those who are apt to depend too much on the laboratory man's imagination that these suggestions are offered.

There is still another factor which might be mentioned as a possible cause for confusion, or dissatisfaction, and that is the occasional lack of specific instructions. Even in the matter of vulcanite plates, the instructions should be definite and they should be submitted when the impressions are forwarded. There are vulcanite plates *and* vulcanite plates! Many laboratories have two or three grades, and the better

quality plates are constructed differently from the regular grade. If you want the laboratory's special plate, your instructions should say so. They should also specify the teeth to be used and whether the case is to be anatomically articulated. When this information is given, the case starts right and can be put through without loss of time and make-overs.

Another thought to bear in mind is that it is unwise to get into the habit of rushing the laboratory unnecessarily. The operation of the modern dental laboratory calls for sufficient speed to meet ordinary demands, but it is a speed which is combined with accuracy. Continual requests for greater speed might lead to a possibility of error which would prove disappointing to both parties concerned.

The one safe way to hurry a case is to use the mail service properly. Small packages should always be forwarded to the laboratory by first-class mail; large packages should be sent by parcel post, *special delivery*. Materials must be wrapped securely and properly addressed. It is risky to send fragile articles through the mails in a flimsy wrapper, as they may be subjected to rough handling at times. Packages which are improperly addressed are liable to go astray. To guard against these possibilities, it is wiser to use standard mailing boxes and printed addressing labels, which your laboratory will gladly supply.

Observance of the suggestions given in this article will help to make possible that for which we are all striving—perfect cooperation between the dentist and the dental laboratory.

141 West 36th Street.

Excerpts From an Address Entitled the Construction of Porcelain Rooted Pontics*

By Henry P. Boos, Minneapolis, Minn.

The elimination of diseased teeth has resulted in an enormously increased demand for some type of dental restoration. Until quite recently fixed bridgework has been the routine method. Today fixed bridgework is challenged, not alone by the dental profession but also by the medical profession, and not infrequently by the patients. The dental profession has recognized this challenge and has attempted to correct it, with perhaps too many relying wholly upon a greater elaboration of technic.

Shoulder crowns, three-quarter crowns, attachments, clasps and

* The complete address was delivered before the American Dental Laboratories Association, Cleveland, September, 1923.

different forms of bridge dummies or pontics have all received their share of attention. One method has replaced another. The movable type of construction has replaced the fixed. Broken stress design is now much in vogue. The filling of spaces seems to be the goal.

That stationary bridgework was a failure because of fixation has never been entirely proved. Neither has the removable type been a success because of the lack of fixation. Perhaps the type of pontics should be considered to aid in satisfactory construction.

Good dentistry means good health, and therefore we must endeavor to construct our bridge cases so that they will not result in failures. We must try to build them to be serviceable, sanitary and esthetic.

To preserve the health of the investing tissue, have in mind a bridge dummy or pontic constructed to function as much like a natural tooth as is mechanically possible. Correct occlusal carvings, embrasures and interproximal spacings must all be given most careful consideration. Have in mind the cross section of a natural tooth, either an anterior or a posterior, and also try to visualize the cross section of a bridge dummy as it is usually constructed. To carry the point to you better, I shall try to illustrate.

Would it not be quite an advantage if it were possible to duplicate or nearly duplicate this natural tooth? How far we fall short of the mark when building an anterior or a posterior dummy according to the technic which is common practice! You therefore perhaps will be interested to learn of a bridge dummy or pontic that we have been constructing in our section of the country for a number of years. We have had our troubles—yes, many of them!—all brought about by the fact that the results in the beginning were so very satisfactory that many thought we had finally discovered a wonderful something, a technic that would satisfy the dentist and the patient.

It may interest you to learn that we have been building bridges with porcelain roots or tips for many years. Years ago a request came to us from one of our local dentists, Dr. H. A. Roan, that we build a bridge dummy for a cuspid to preserve a certain prominence that existed in the cuspid region of that particular case. On that order we designed a porcelain root bridge dummy. The result was astonishing. After the patient had worn the bridge for about two years we carried the idea to other men in our section, and that was the beginning of the construction of bridge cases with porcelain roots as we know it.

In the beginning we were extremely careful in the selection of cases. The dentists for whom we were constructing these cases were clever technicians, men who were careful in diagnosis and operators of high standing. In the construction of these cases we experienced no difficulty and therefore, after a number of years, covered our territory

with cases with porcelain extensions or roots. The technic that had been giving us most wonderful results also gave us trouble. Some of the operators were eager to place these bridges. Many cases were constructed without careful consideration of existing conditions, which could have been revealed by the x-ray. The result was many trouble cases.

The highly glazed porcelain roots did not carry trouble to the cases, but that which already existed soon destroyed the labial or buccal process; and in a number of cases our porcelain roots were entirely exposed. The troubles of the past brought about a change in technic. Shortening the length of the roots was suggested, and many more cases were constructed with the porcelain tips built to tissue contact. Today in those cases which are constructed with porcelain roots the extension into the sockets varies. Some operators prefer a root averaging from four to five millimeters; others desire that the root extend but two or three millimeters into the socket from the gingival line.

Many bridges are built with short porcelain roots for cases where the teeth are to be extracted and the teeth restored immediately; and under proper conditions there is no more comfortable and esthetic pontic than that type in which the highly glazed porcelain root extends a short distance into the socket. This type, however, should be built for those cases where the radiogram reveals a favorable condition and where the number of roots is very limited, as for one, two or three adjoining teeth.

Tapering the roots to engage the socket, in order to avoid impingement on the septum, many times produces an unsatisfactory result, for very frequently the septa resorb and unsightly interproximal spaces soon exist. This technic should not be used where the supporting tissues are diseased, as in pyorrhea cases, or where the buccal or the labial plate or process has been fractured, or where these plates are very thin.

Those cases would indicate a partial denture to be worn for a period of time before the construction of the bridge, and most astonishing results are produced. The highly glazed porcelain in contact with tissue and the elimination of lingual concavities by better restoring tooth anatomy produce a comfortable result for the patient. That method also carries with it the possibilities of obtaining that which we in our business so much appreciate—a reasonable length of time for the proper construction of the case.

In cases where the conditions are such as to prohibit the use of the porcelain root, and for those men who would prefer to construct pontics without extensions into the sockets, suggest the construction of a tooth, following the same technic with the exception that the porcelain extends only to touch the tissue and not into the socket.

Some dentists prefer that their pontics be built quite conical, to

cover the least amount of tissue, and others are quite enthusiastic about the construction of bridges with the pontics designed to cover a greater area of tissue, more in the shape of individual porcelain saddles.

For those cases where teeth are to be extracted, we suggest extraction after the bridge is completed. That is, the dentist should make his diagnosis, determine on the method or type of bridge to be constructed, build the abutments, place these abutments in position, take a wax bite, an impression as he desires, and also an impression of the opposite arch. The laboratory will then pour the cast. Mount the case on an articulator. Observe the type and the position of the natural teeth. Carefully carve the gingival line so that the tooth may be carved from the cast and the socket prepared to correct size at the gingival.

Select the facings. Use long blunt pin facings. Grind the facing to position, setting it as you desire. Now pour a face piece or matrix of plaster so that it will be possible for you to remove the retaining wax and observe the amount of porcelain necessary for socket or root extension, or for tissue touch, as the case requires. Remove the facing, cleanse thoroughly, add porcelain, biscuiting larger than necessary. Grind to position. Be extremely careful to shape this porcelain addition for the requirements of the case. After grinding porcelain to the desired shape, glaze. The porcelain should carry a high glaze.

After the tooth has been properly glazed, place to position, using the face piece or matrix as a guide. Then prepare to complete the individual tooth by building with inlay wax to restore or build the desired tooth anatomy. Remove and cast, following your usual casting technic. We find that the castings of hard gold aid greatly in preventing breaks or fractured facings under the stress of mastication. The wax and castings should be given the same careful consideration that any operator would give to the building of an inlay.

Proper technic, attention to every detail of construction, and the use of proper materials will produce astonishing results.

The shape of the bridge tooth should be determined by the contiguous teeth. Duplicate the anatomy that exists.

Result: A bridge tooth or pontic that functions like a natural tooth and does not establish lingual concavities.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions should be addressed to Miss Elsie Pierce, care of THE DENTAL DIGEST, 220 West 42nd Street, New York City.

Another reply to the letter signed G., Middle West, which was published in the January Questionnaire, follows.

"Your letter aroused my interest. If you are financially situated so you can go through college you evidently would make a success as a dentist. Your letter suggests that you feel that you are worth more than you are getting. You would be if your employer is making enough so that he can afford to pay a higher salary. . . . If you are as capable as your letter indicates, you should be able to earn about $35.00 a week in a one-man office where the gross receipts would average $1,500 a month. In other words, the capable assistant should have about 10% of the total receipts of the office.

"It is always harder for a newcomer to a city to get a position than an old resident, and you probably would have to work for a smaller wage until your ability was proved. In some instances a girl is successful as a dental mechanic or technician, also as an exclusive porcelain worker. A position of this kind is to be found only in a city and pays from $30.00 to $50.00 a week. If you were in Los Angeles I could give you a start at $90.00 to $100.00 a month as second girl. I find that a girl who is not capable of earning that much is an expensive girl to have in the office. . . .

"In California we have a minimum wage law that calls for $16.50 a week for experienced help, as that is supposed to be the amount necessary for a girl to live on. I trust that I have answered your questions. If I can be of further assistance, write to me.

R., D.D.S., Los Angeles, Cal."

A dental assistant sends in the following points about the human body which should be of interest to every dental assistant, as patients frequently ask questions of her following a health talk by the dentist.

The adult bony framework consists of 200 distinct bones, in the spine 26, cranium 8, face 14, os hyoideum, sternum and ribs 26, upper extremities 64, and lower extremities 62. In these the patellae (knee caps) are included as separate bones, but the smaller sesamoid (small bone developed in a tendon) and the auditory ossicles (small bones in the tympanic cavity of the ear) are not reckoned. The teeth belong to the tegumentary system. (Gray)

There are said to be about 500 muscles in the human body and over 10,000,000 nerves.

The skin is the protective covering of the body and is composed of the external covering, epidermis or cuticle, and an under layer of vascular connective tissue, derma or corium. The outer or scarf skin is composed of layers of cells that dry on the outside and fall off in great numbers; these form a defensive covering to the surface of the true skin, and are replaced constantly by others being formed in the lower layer. The epidermis or cuticle varies in thickness on different parts of the body, as in the palms of the hand and soles of the feet it is thick, hard, and often horny in texture. The derma or corium consists of fibrous connective tissue and a number of blood vessels, glands and nerves. The skin is the principal seat of the sense of touch. The nails and hairs are appendages of the skin and are peculiar modifications of the epidermis, being essentially of the same cellular structure.

The alimentary canal or digestive tube (from lips to anus) is about thirty feet in length. Its accessory organs may be listed as: mouth, pharynx, esophagus, stomach, small intestine, large intestine or colon, anus; and the following glands: salivary, liver, pancreas, spleen.

The heart beats approximately seventy times a minute and at this rate one hundred thousand eight hundred times a day and over thirty-six million times a year. All the blood in the body passes through the heart in approximately three minutes and the amount of blood in an adult averages thirty pounds.

The lungs are two in number, one on each side of the chest; each lung is divided into two lobes, the weight of both being about forty-two ounces, the right being larger and two ounces heavier than the left. It is said that the lungs contain about one gallon of air at their usual degree of inflation. On an average a person breathes approximately one thousand two hundred times an hour and inhales six hundred gallons of air a day.

I have a number of steel instruments that are rusty. Can you give me a method of removal for these discolorations?

B., N. Y.

I suggest that you try a mixture of half an ounce of emery powder and one ounce of soap. Mix and rub well on stain.

I should greatly appreciate it if you would tell me where I could take a course enabling me to become a Dental Hygienist. Are there any evening classes in this work? What are the preliminary requirements? M. F., Brooklyn.

We suggest that you get in touch with Dr. Anna V. Hughes, Director of the School of Dental Hygiene, 302 East 35th Street, New York City, or write to the Secretary of the School for all information desired.

We have not yet received information desired about a dental assistants' society in Nebraska. Will not our readers cooperate and send us this information which will be greatly appreciated?

March Meeting

of

EDUCATIONAL AND EFFICIENCY SOCIETY FOR DENTAL ASSISTANTS, FIRST DISTRICT, NEW YORK, INC.

The March meeting of the Educational and Efficiency Society for Dental Assistants, First District, New York, Inc., was held on Tuesday evening, March 11th, at the Academy of Medicine, 17 West 43rd Street, New York City, Juliette A. Southard, President, in the chair.

Following a short business meeting a group clinic was presented by members of the Educational and Efficiency Clinic Club, demonstrating the various phases of assisting which a competent assistant can take care of with a view to more efficient service to the dentist and his patients. The following sections were represented:

Secretarial: Irene Walker, Chairman; Misses M. Miller, Gossl, and Goldstein, Assistants. Here were shown various systems of accounting, bookkeeping, banking, filing, telephone courtesy, appointment records, charts, letter forms, follow-up systems, etc.

Chair Assistance and Accessories: Agnes MacNeil, Chairman; Misses Gilmore, Autenrieth and Dannenbaum, Assistants. Here were accessories handmade by the assistants for more efficient care in the various operations; sponges, swabs, packs, dressings, of gauze, cotton and bibulous paper; headrest covers, aprons, instrument wraps. Demonstrations were given also of the preparation of anesthetics, first aid, care of rubber gloves and mechanical appliances, mixing of alloys, cements, synthetic porcelains, etc.

Sterilization: Catherine Duffy, Chairman; Misses Hall and Hale, Assistants. They showed thermal, therapeutic and mechanical methods of sterilization for instruments, dressings, linen, hands, general equip-

ment, and also gave formulae and directions for use and the special technic for the care and sterilization of root canal instruments, etc.

Orthodontic Assistance: Mae L. Bennett, Chairman; Miss Vanderbeek, Assistant. Technic was shown of caring for the impressions of the completed models, record charts, impression drying trays, helpful incidentals in orthodontic procedure, special bibs for plaster impressions, etc.

Roentgenograms: Emily Campbell, Chairman; Viola Watrous, Assistant. A demonstration was given of the care in developing and mounting; technic, time, solutions, equipment, filing and records; primitive methods of developing as compared with up-to-date methods, etc.

Laboratory: Bertha Ungricht and Martha Keit, Chairmen; Misses Tallaksen, Marvel and Rawlson, Assistants. They demonstrated inlay casting, direct and indirect, gold casting, plaster and stone models, vulcanite repairs, carvings of tooth models in wax and plaster, porcelain staining, etc.

A large attendance was recorded, notwithstanding the inclement weather, and a number of prominent members of the dental profession were present. All agreed that it was a wonderful presentation with the assistants in their spotless, natty uniforms looking very efficient and capable in their rôles of clinicians. The dentists were all observed taking notes—this being good evidence that the clinics were of value.

Mrs. F. E. Jeffrey and Miss Hyland, President and Vice-President of the Educational and Efficiency Society of Massachusetts came from Boston especially to attend the clinics. They are very enthusiastic about the work and in a few well chosen words Mrs. Jeffrey complimented the members on their efforts and said that Massachusetts was hoping to be able to show equally fine results in time.

It was announced that the annual dinner of the Society would be held on Saturday evening, April 26th, at 6:30 P. M. at the Hotel Astor. Prominent speakers will take part in the program and there will be musical entertainment, vocal and instrumental. A number of members of the dental profession of prominence have signified their intention of being present.

A report was given by the associate director of clinics, Miss Agnes MacNeil, on the clinic presented before the Second District Dental Society at the Kings County Medical Society Building, Brooklyn, N. Y., Monday, March 10th, from 4 to 6 P. M. Fourteen members of the Clinic Club took part in the demonstration of the various sections presented. A large attendance of dentists was very gratifying, and many expressions of commendation were received. On April 10th and 11th the Clinic Club will give a group clinic before the convention of the New Jersey State Dental Society at Trenton, N. J., and on

May 9th before the Dental Society of the State of New York at Binghamton. Tentative plans are being made for a clinic to be given in Massachusetts in June.

The chairmen of the various classes, provided by the society for its members free of charge, reported very good progress and attendance. About twenty-five members are taking a course in Character Analysis.

Five names were presented for membership, and a number of dental assistants who had come as visitors signified their intention of becoming members in the near future.

Dental Assistants of Massachusetts

The second meeting of The Educational and Efficiency Society for Dental Assistants of Massachusetts took place at Lynn, Tuesday, March 25, 1924.

The meeting took the form of demonstrations or table clinics by the girls who are forming a clinic club on helpful hints in office routine, simple accounts and chair accessories.

All dentists are cordially invited to attend the meetings, and assistants desiring to become members of the Society will be welcomed.

Mrs. F. E. Jeffrey, *President,*
219 Essex St., Salem, Mass.

EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

Well, why shouldn't speech be free? Very little of it is worth anything.

The instrument used to hear bugs talk is called a microphone, but at times the radio serves just as well.

(Boy)—Say, Pop, what is a waffle?
(Pop)—A waffle is a non-skid pancake.

Nature keeps things pretty well balanced. Europe has the worst wars, but we have nine times as many automobiles.

(Medical Student)—It is said that there are lots of calories in these beans.
(Waiter)—I don't think so, because we stuff up all the cracks in the walls to keep those things from crawling in.

A farmer took his wife down to the seashore. "Who'd have thought there could be that much water in the world," she said. "Yes, Maria," he answered, "and just think—what you're looking at is only what's on top."

Most of the exciting books nowadays are written by Lloyd George on the subject of whither are we going, and by William J. Bryan on the subject of where do we come from.

A professor in a medical school asked a student, "What is a dose of croton oil?" The student replied, "A teaspoonful." The professor said nothing, but looked at his watch. The work of the class went on. Some minutes later the student attracted the professor's attention and exclaimed: "O, professor, I made an error. A dose of croton oil is one drop." The professor quietly looked at his watch and dryly remarked, "Yes, and your patient has been dead just twelve minutes."

(Little Susie)—I'd hate to be a hen.
(Papa)—Why, dear?
(Susie)—'Cause then I'd have to lay eggs, and I don't know how.

(Cole)—What an old fashioned house you're putting up.
(Dole)—I know it's old fashioned, but this is going to be one of Gen. Washington's military headquarters when it's finished.

Another advantage Adam had—Eve couldn't threaten to go home to her mother!

(Bore)—I'd certainly like to see that clever little dog of yours do some tricks, Miss Keen.
(Bored)—Well, just whistle and he'll bring your hat.

First of all, the Dawes report emphasizes, Germany must get back to sound money. Confetti, shredded shelf paper and minced laundry checks have lost all standing with bill collectors. If Germany is to get anywhere in particular she must stabilize her money supply so a man won't have to carry street carfare in a steamer trunk and back up a four horse truck every time he wants to negotiate for a five cent cigar.

(Hill)—Hey, Bill! What caused the siege of Troy?
(Bill)—Dunno, unless it was a strike in one of the collar works.

One thing about a radio set is that it causes a lot of dust to collect on the books.

(The Boss)—Young man, you told me yesterday afternoon you had an engagement with your dentist.
(The Clerk)—Yes, sir, I did.
(The Boss)—Well, I saw you at the ball game.
(The Clerk)—Sure, and the tall man sitting next to me was my dentist.

Heaven is a place where the man in the next office occasionally has some matches of his own.

A man boasting of his automobile said: "That little boat can pass anything on the road but a gas station."

A distinguished English diplomat, while attending a dinner party in Washington, said: "Young men rise easily from the ranks here in America, because the American spirit is so democratic. In Europe it is quite different, which I may illustrate with a little story. One day a clerk remarked to his employer, 'I think we are going to have rain, sir.' *We!* howled the employer. *We* are going to have rain! How long have you been a member of this firm?"

CONVENTION
AMERICAN DENTAL ASSOCIATION
NOVEMBER 10-14, 1924
DALLAS, TEXAS
"The City of the Hour"
Convention and Exhibit Hall all under one roof
A Great Meeting in a Great City

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS, OF AUGUST 24, 1912

OF THE DENTAL DIGEST
at NEW YORK, N. Y.

Published monthly
for April 1, 1924

State of New York }
County of New York } ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared John R. Sheppard, who, having been duly sworn according to law, deposes and says that he is the Secretary of the Dentists' Supply Co., Publishers of THE DENTAL DIGEST, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

NAME OF	POST OFFICE ADDRESS
Publisher, THE DENTISTS' SUPPLY COMPANY	220 West 42nd St., New York, N. Y.
Editor, GEORGE WOOD CLAPP	New Rochelle, N. Y.
Managing Editor, GEORGE WOOD CLAPP	New Rochelle, N. Y.
Business Manager, L. W. DUNHAM	New Rochelle, N. Y.

2. That the owners are:

THE DENTISTS' SUPPLY COMPANY	220 West 42nd St., New York, N. Y.
DETREY & CO., LTD.	23 Swallow St., London, England
LEROY FRANTZ	Sutton Manor, New Rochelle, N. Y.
GERTRUDE L. FRANTZ, Trustee for Horace G. Frantz	221 Cheyenne Rd., Colorado Springs, Colo.
GERTRUDE L. FRANTZ	221 Cheyenne Rd., Colorado Springs, Colo.
VIOLA F. GOOD	12 Laurel Pl., New Rochelle, N. Y.
DEAN C. OSBORNE	839 St. Marks Ave., Brooklyn, N. Y.
SADE E. L. OSBORNE	839 St. Marks Ave., Brooklyn, N. Y.
JOHN R. SHEPPARD	155 Riverside Drive, New York, N. Y.
RUTH A. P. SHEPPARD	155 Riverside Drive, New York, N. Y.
ETHEL F. TOMB	167 Lake Ave., Newton Centre, Mass.
GEORGE H. WHITELEY	905 S. Beaver St., York, Pa.
IDA O. WHITELEY	905 S. Beaver St., York, Pa.
GEORGE H. WHITELEY, JR.	121 W. Springettsbury Ave., York, Pa.
JAMES OSBORNE WHITELEY	122 W. Springettsbury Ave., York, Pa.

DE TREY & CO., LTD., is a corporation organized under the laws of England, with an authorized capital stock of 2,000,000 shares of One Pound each, ownership of which is scattered over a considerable part of Europe and includes a long list of names unknown to us, and probably a number of banks and other corporations.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

THE DENTISTS' SUPPLY COMPANY,
J. R. SHEPPARD, *Sec'y & Treas.*

Sworn to and subscribed before me this 31st day of March, 1924.

[SEAL] EMELIE E. SCHAAD
Notary Public, Westchester County
Certificate filed in N. Y. County
Clerk's No. 83; Register's No. 5264—My commission expires March 30, 1925.

FUTURE EVENTS

The sixth annual meeting of the IOWA STATE DENTAL ASSISTANTS' ASSOCIATION will be held in Des Moines, Iowa, May 6th, 7th and 8th.

A cordial invitation is extended to all dental assistants in Iowa, and all assistants in the State who do not belong are earnestly requested to get in touch with Mrs. Mary Bliss, Secretary, 615 Frances Bldg., Sioux City, Iowa.

Memberships will be issued during the meeting to those who are unable to get in touch with the Secretary before May first.

Representatives from other States are invited.

The fourth annual meeting of the DENTAL HYGIENISTS ASSOCIATION OF THE STATE OF NEW YORK will be held at Kalurah Temple, Binghamton, New York, May 9-10, 1924.

Hotel reservations should be made direct with hotel management, Hotels Arlington, Bennett, Carlton.

The Executive Board will meet Thursday, May 8 at 3:00 P. M.; business and literary meetings Friday, May 9, and clinics Saturday, May 10.

A cordial invitation is extended to dentists and hygienists to attend literary meetings and clinics. For further information apply:

MRS. MILDRED L. SKINNER, *President,*
39 Falls St., Niagara Falls, N. Y.
GRETCHEN GOLDSMITH, *Corresponding Secretary,*
1-11 Bates Block, Ithaca, N. Y.

The fifty-sixth annual meeting of the PENNSYLVANIA STATE DENTAL SOCIETY will be held in Syria Mosque, Pittsburgh, May 13-15, 1924.

The program is a very complete one, and includes as essayists: E. W. Hatton, Chicago; Percy R. Howe, Boston; Newton G. Thomas, Chicago; E. W. Howard, Des Moines, and Edward T. Tinker, Minneapolis.

All railroads will sell round-trip tickets, on the "Certificate Plan," at one and one-half the one-way rate. Certificates can be obtained by writing the Secretary, A. C. Barclay, Highland Building, Pittsburgh, Pa.

A cordial invitation is extended to all members of dental societies.

The tenth annual meeting of the CONNECTICUT DENTAL HYGIENISTS' ASSOCIATION will be held on May 16 and 17, 1924, at the Old State House, Hartford, Connecticut.

C. LOUISE HARRIS, *Secretary,*
215 Whitney Ave., New Haven, Conn.

The first annual (reorganization) alumni meeting and homecoming of the COLLEGE OF PHYSICIANS AND SURGEONS DENTAL ALUMNI will be held at the College, 344 14th St., San Francisco, California, May 24, 1924.

Dr. Paul J. Boyens, Chairman of the Clinic Committee, has arranged an attractive program of papers and clinics; prominent among them will be an address by Dr. John P. Buckley.

All ethical members of the Alumni of the school are cordially invited.

SHIRLEY J. ASHBY, *Chairman,*
MERVIN L. PERKINS, *Secretary.*

The next monthly meeting of the NEW YORK STOMATOLOGICAL SOCIETY will be held on Monday afternoon, May 26, 1924, at Aeolian Hall, Suite 1442, New York City.

Professor Holmes C. Jackson of the University and Bellevue Hospital Medical College will lecture on "Physiology of Nutrition," a subject of vital interest to stomatologists and dental surgeons.

John L. Kelly, D.M.D., will report a case on "Early Treatment of Pyorrhea."

Alfred Asgis, Sc.D., D.D.S., will demonstrate the use of "The Stomatological Chart" by the general dental practitioner.

Geo. F. Shera, D.D.S., will demonstrate the various methods of "Gum Massage" in use at the present time.

Robert H. Rose, A.B., M.D., will give a lecture on "Diet in Disease," on May 20, 1924, at 8 P. M.

By unanimous vote of the members at the last meeting, The Review of Clinical Stomatology was chosen as the official organ of the Society. This journal is edited by Alfred Asgis, Sc.D., D.D.S., of New York City and Geo. W. Mackenzie, M.D., of Philadelphia, Pa.

All members of the profession are invited to attend the closing meeting of the season.

The following officers were elected for the term 1924-1925:

President, Dr. Stanley Slocum; Vice-President, Dr. J. C. Ruggier; Secretary, Dr. F. W. McDonald; Treasurer, Dr. Rex T. Taylor.

DR. ALFRED ASGIS, *President,*
DR. STANLEY SLOCUM, *Secretary,*
597 Fifth Avenue, New York.

THE BOARD OF DENTAL EXAMINERS OF ALABAMA will meet Monday, June 16, 1924, at 9:00 A. M. at the Birmingham Dental College, Avenue F and 20th St., Birmingham, Alabama, for the purpose of examining applicants, who hold diplomas from reputable dental colleges, for certificates of qualification to practise dentistry in Alabama.

All applications accompanied by the examination fee *must* be filed with the Secretary-Treasurer at least *two* weeks before the examination or applicant will be barred from the examination.

For further information, application blanks, etc., address

DR. H. CLAY HASSELL, *Secretary-Treasurer,*
616—22nd Avenue, Tuscaloosa, Alabama.